

San Antonio Water Company



2010 Urban Water Management Plan

Volume 1 - Report

June 2011

Prepared by



GENERAL CIVIL, MUNICIPAL, WATER AND WASTEWATER ENGINEERING
PLANNING, CONSTRUCTION MANAGEMENT AND SURVEYING

Providing Professional Engineering Services since 1986

San Antonio Water Company 2010 Urban Water Management Plan Volume 1 - Report

PREPARED FOR

SAN ANTONIO WATER COMPANY
139 N. EUCLID AVENUE
UPLAND, CA 91786

JUNE 2011

PREPARED BY



CIVIL AND ENVIRONMENTAL ENGINEERING
PLANNING AND CONSTRUCTION MANAGEMENT
118 W. LIME AVENUE, MONROVIA, CA 91016
(626) 357-0588 FAX: (626) 303-7957

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Under the Supervision of:

C. SHEM HAWES, P.E.

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C.E.



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¹ Appendices are under a separate cover:
San Antonio Water Company 2010 Urban Water Management Plan, Volume 2 – Appendices



PREPARER AND COMPANY CONTACT INFORMATION

Date UWMP was adopted by SAWCo: June 21, 2011

Date UWMP was submitted to DWR: July 20, 2011

Name of Preparer: Civiltec Engineering, Inc.

Contact Person: W David Byrum, P.E., Principal Engineer

Preparer address: 118 W Lime Avenue, Monrovia CA 91016

Preparer phone: (626) 357-0588

Preparer fax: (626) 303-7957

Preparer email: dbyrum@civiltec.com

Name of supplier: San Antonio Water Company

Supplier status: Urban Wholesale Water Supplier

Contact Person: Charles Moorrees, General Manager

Supplier address: 139 N. Euclid Avenue, Upland CA 91786-6036

Supplier phone: (909) 982-4107

Supplier fax: (909) 920-3047

Supplier email: cmoorrees@sawaterco.com



EXECUTIVE SUMMARY

Background

This Urban Water Management Plan (UWMP) for the San Antonio Water Company (SAWCo) has been prepared in accordance with the California Urban Water Management Planning Act and the California Water Conservation Act as mandated in the California Water Code for urban water suppliers.

In addition to compliance with State mandate, this UWMP is a living document whose contents fulfill a variety of planning, informational and legal requirements. It will serve as a primary source for integrated water and land use planning at the purveyor, city and county levels per compliance with SB 610 and SB 221 related to water assessment and procurement of water supplies prior to construction of new development. The accuracy, clarity, completeness and usefulness of this UWMP is defensible and representative of SAWCo's best understanding of the state of water management at the time of adoption. To that end, all aspects of water management as they pertain to SAWCo have been delineated in order to provide developers, planners, government agencies and its shareholders with the tools they need to fulfill their individual missions and interests.

The State believes that the responsibilities of a water wholesaler and a water retailer are significantly different with respect to water use efficiency since only the water retailer deals directly with end users and can more easily leverage this relationship to encourage the changes in behavior necessary to prevent water waste and to promote water conservation. SAWCo serves as both a retailer and wholesaler; however, the State obligates each water supplier to declare its status on this matter. The State has developed the following threshold for urban retail water suppliers: any water supplier that provides water to more than 3,000 end users or supplies more than 3,000 acre-feet per year (AFY) at retail is classified as an urban retail water supplier. In SAWCo's case and by definition, neither the number of retail accounts nor the volume of retail deliveries exceeds this threshold; therefore, the status of "urban wholesale water supplier" has been adopted for purposes of complying with the Water Code. A legal opinion was provided to this effect by Nossaman, LLP in concurrence with this determination by **Civiltec Engineering, Inc. (Civiltec)**, the consultant responsible for the preparation of this UWMP.

It should be noted that classification as an "urban wholesale water provider" is a departure from the preparation of SAWCo's 2005 UWMP, and SAWCo has taken steps to make this status known, specifically to the California Urban Water Conservation Council (CUWCC), the Inland Empire Utilities Agency (IEUA), the various water retailers who are SAWCo shareholders and ultimately the California Department of Water Resources (DWR) through submittal of this UWMP. The specific requirements for SAWCo are more narrowly defined than for retail water suppliers and include certain exemptions as reflected in the presentation of this UWMP. Nonetheless, the disposition



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of SAWCo's retail and wholesale shareholders are described in detail since such delineation fulfills the planning and informational aspects of this UWMP.

An exemption of note is that SAWCo is not required to prepare a water use reduction plan for compliance with those portions of the California Water Conservation Act aimed at improving water use efficiency through the calculation of baseline per capita water use and interim and compliance per capita water use targets. This is fortuitous since SAWCo delivers water on a per share basis and not on a per capita basis. The direct responsibility for implementation of per capita water use efficiency has been deferred to those shareholders who provide retail service. SAWCo is not exempted from using water efficiently, only from providing formal reporting and planning on the efficient use of water by end users.

Care was taken to present SAWCo as a corporation which functions according to, and is bound by, its Bylaws. The Bylaws, and their implementation, considered to be the most pertinent to preparing the various aspects of this UWMP are as follows:

SAWCo Bylaws §1.01 The specific purpose of the corporation is to develop, distribute, supply, and deliver water to its shareholders for irrigation, domestic, and all other useful purposes, in proportion to the number of shares of stock held by them respectively, at actual cost, and is not organized for the private gain of any person.

SAWCo Bylaws §10.01 No water shall be supplied by company to any one who is not a shareholder, and all water shall be supplied at cost. ...each shareholder shall be entitled to receive such part of the entire water of the company that is available for distribution as the number of shares of stock held by him bears to the number of shares outstanding.

The Bylaws go on to specify the service area as being made up of a Basic Area and an Extended Area.

The Basic Area generally coincides with the community of San Antonio Heights which is located north of the City of Upland in unincorporated San Bernardino County. SAWCo provides retail service to all end users who reside in the Basic Area.

The description of the Extended Area is considerably more vague, stated as "all lands not included in the Basic Area." SAWCo has a limited number of retail customers in the extended area including the Upland Hills Golf Course, the Red Hill Golf Course, two rock companies and several grove irrigators. For purposes of this UWMP, all other water deliveries made in the Extended Area are considered to be to wholesale customers.



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Conclusions

There are 6,389 outstanding shares. SAWCo will issue no more shares; therefore the number of shares is finite. The “entire water of the company” is equivalent to 16,573.85 AFY which represents a 10-year average established in 2005. This equates to an entitlement of 2.594 AFY per share. Typical water suppliers must account for growth and the associate increase in water demand within their sphere of influence; however, SAWCo does not directly experience or react to growth based on such external influences. As such, water use projections related to population growth and density, land use, zoning, development and other typical indicators have no bearing on SAWCo supply.

Water is supplied based on entitlement only. Entitlement is based on the number of shares held. Although finite in number, shares are a commodity which may be divided or sold, and are not tied to the land. For this reason, even though the “entire water of the company” is known, the distribution of entitlement among the shareholders has an unpredictable nature due the liquidity of the shares. As such, current deliveries are no clear indicator of future entitlement distribution since transactions related to the acquisition of shares may occur at any time in accordance with California corporate law. SAWCo believes the level of analysis required to project the distribution of entitlement over the specified planning horizon is beyond the scope of the intent of the Urban Water Management Planning Act. Therefore, projected supply has been presented in terms of total entitlement in AFY and AFY per share rather than in terms of the entitlement currently held by individual shareholders.

Water supply for SAWCo is a mixture of surface water from San Antonio Creek and groundwater from the San Antonio Tunnel and three adjudicated basins: Chino Basin, Cucamonga Basin and Six Basins. The table below provides a working summary of typical rights and availability, and anticipated annual production from each source.

Summary of System Supplies

Source of Supply	Annual Rights (AFY)	Average Annual Production (AFY)	Percent of Annual Rights Used on Average
San Antonio Creek	13,864.610	5,019.000	37%
San Antonio Tunnel	2,507.000	2,507.000	100%
Chino Basin	1,506.888	1,506.888	100%
Cucamonga Basin	6,500.000	6,500.000	100%
Six Basins	1,254.000	1,112.000	89%
Total	25,632.498	16,644.888	65%



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There a great deal of flexibility built into the management of SAWCo's sources which is used to accommodate surpluses and deficits in a manner that provides consistent supply from year to year.

The current and future development of SAWCo's water supplies is limited to increasing the efficient management and capture of SAWCo's existing surface water and groundwater rights. The State has determined that the development of recycled water is required to meet the overall goals of the California Water Conservation Act and has mandated that all water suppliers describe their efforts on this front. To that end, SAWCo is making no efforts to become a recycled water purveyor but is encouraging the use and development of recycled water sources through coordination with the IEUA and its member agencies. Of note is the potential conversion to recycled water use of two golf courses, two rock companies and various agricultural water users. This will have the indirect impact of freeing up SAWCo supplies currently used by these shareholders for use elsewhere.

SAWCo must provide details on the reliability of its supplies under three conditions mandated by the State: normal-year, single-dry-year and multiple-dry-year. Analysis of these conditions based on historical data revealed that under normal-year and multiple-dry-year conditions, the current total entitlement of 16,573.85 AFY is reliable. Under single-dry-year conditions (i.e. a severe one-year drought), a total entitlement of 15,253.81 AFY is reliable which is consistent with the historical reliability of SAWCo supplies under the drought conditions of 2002.

Demand Management Measures (DMMs), also known as Best Management Practices (BMPs) by the CUWCC, have been developed by the State as methods for the systematic implementation of water conservation. Given SAWCo's newly declared status as a wholesaler, those DMMs within SAWCo's purview have changed with respect to previous reporting. As a signatory to the CUWCC Memorandum of Understanding regarding Urban Water Conservation in California, SAWCo has made a commitment to the pursuit of water conservation. The CUWCC 2009-10 Annual BMP Activity and Coverage Reports are in progress at this time.



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1.1 General Description

The Urban Water Management Planning Act (Act) was adopted in 1983 and may be found in the California Water Code, §§10610-10656 (see Appendix A). The San Antonio Water Company (SAWCo) is obligated to prepare and adopt this Urban Water Management Plan (UWMP) in the manner specified in the Act by virtue of meeting the statutory definition of an “urban wholesale water supplier”:

§10608.12(r) “Urban wholesale water supplier,” means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

SAWCo provides a total annual entitlement of 16,573.85 AFY including limited retail service to 1,199 accounts with an annual entitlement of 2,865.208 AFY as delineated in Table 1.

Table 1 – Breakdown of Retail Entitlement

Type of Retail Shareholder	Accounts	Entitlement (AFY)
Basic Area	1,185	1,587.603
Golf Courses	2	778.885
Rock Companies	3	351.504
Grove Irrigators	9	147.216
Total Retail Entitlement	1,199	2,865.208

The California Water Code provides the following definition of an “urban retail water supplier”:

§10608.12(p) “Urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

By definition, neither the number of retail accounts nor the volume of retail deliveries exceeds the threshold for classification as an “urban retail water supplier”; therefore, the status of “urban wholesale water supplier” has been adopted for purposes of complying with the Water Code. Appendix B includes a legal opinion to this effect. As an “urban wholesale water provider”, the specific requirements for SAWCo are more narrowly defined than for retail water suppliers and include certain exemptions as reflected in the presentation of this UWMP. The concept of entitlement as it relates to SAWCo is defined in §2.1.2.



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The Act, and elements of the California Water Conservation Act of 2009, require all urban water suppliers to report, describe, and in some cases evaluate:

- ◆ water deliveries and uses
- ◆ water supply sources
- ◆ efficient water uses
- ◆ implementation strategy and schedule for demand management measures
- ◆ baseline, interim and compliance daily per capita water use
- ◆ water supply availability to meet existing and future demands
- ◆ water shortage and drought contingency planning

1.2 Purpose

This 2010 Urban Water Management Plan (UWMP) for the San Antonio Water Company has been prepared in fulfillment of the requirements of the California Urban Water Management Planning Act (Act) and in compliance with the *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan* (Guidebook) as provided by the California Department of Water Resources (DWR).

The Guidebook provides guidance respective to the minimum requirements of the California Urban Water Management Planning Act and the recent legislative changes and amendments embodied in the California Water Conservation Act of 2009 and AB 1420 which more narrowly defines eligibility for water management grants and loans.

In addition to compliance with state mandate, this UWMP is a living document whose contents fulfill a variety of planning, informational and legal requirements. It will serve as a primary source for integrated water and land use planning at the district, city and county levels per compliance with SB 610 and SB 221 related to water assessment and procurement of water supplies prior to construction of new development. The accuracy, clarity, completeness and usefulness of this UWMP is defensible and representative of the Company's best understanding of the state of water management at the time of adoption and/or amendment. To that end, all aspects of water management as they pertain to the Company have been delineated in order to provide developers, planners, government agencies and its customers with the tools they need to fulfill their individual missions and interests.

Substantial growth in the State of California is projected by the State Department of Finance, and there is no end in sight. The challenge facing water agencies, public agencies, planners and project proponents is to identify and secure the sources of water needed for the inevitable increase in population. From a water resources point of view,



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planning for such growth is addressed by SB 610, SB 221 and related jurisdictional General Plans.

Cities, counties, water districts, property owners, and developers will all be able to utilize the UWMP when planning for and proposing new projects. For certain “projects” meeting the definitions under SB 610 and/or SB 221, a city or county evaluating the environmental effects of that project must request a Water Supply Assessment (WSA) from the water provider or prepare the WSA on its own. A WSA can rely on an adopted and DWR-approved UWMP making the UWMP a foundational document for compliance with both SB 610 and SB 221. Both of these statutes repeatedly identify the UWMP as a planning document that, if properly prepared, can be used by a water supplier to meet the standards set forth in both statutes. A thorough and complete UWMP will allow the San Antonio Water Company to use the UWMP as a foundation to fulfill the specific requirements of these two statutes.

SB 610 creates a strong link between water supply availability and land use by requiring cities and counties to consider water availability for certain development projects. It promotes collaboration between local water suppliers and cities/counties while recognizing the importance of local control and decision making regarding water availability.

SB 221 requires written verification of sufficient water supply from the water supplier prior the construction of residential subdivisions of greater than 500 dwelling units. A “sufficient water supply” includes assessment of the water supplier’s available projected water supplies for a 20-year period during normal years, single-dry years and multiple-dry years. This assessment must consider the subdivision’s water demands in addition to existing and planned future demands.

The UWMP serves as an important source document for cities and counties as they update their General Plans. Conversely, General Plans are source documents as water suppliers update their UWMPs. These planning documents are linked and their accuracy and usefulness are interdependent. It is crucial that cities, counties and water suppliers work closely when developing and updating these planning documents.

1.3 Organization

To assist the reader in understanding the legal mandates involved in the various aspects of this UWMP, relevant and applicable excerpts for the California Water Code (CWC) are provided immediately following each section heading. These excerpts are cited by CWC section designation and offset in italic print to differentiate them from other text.

In general, the chapters of this UWMP are laid out as presented in the Guidebook along with recommended tables and other content.



1.4 Coordination

§10620(d)(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

§10621(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

§10635(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

Notification of SAWCo's intent to update this UWMP has been disseminated to all perceived stakeholders. Table 2 provides a graphic summary of that effort and the level of coordination that ensued.



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Table 2 – Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved / No information
San Bernardino County	✓			✓		✓	
City of Upland					✓	✓	
City of Ontario					✓	✓	
Monte Vista Water District					✓	✓	
Cucamonga Valley Water District					✓	✓	
Three Valleys Municipal Water District				✓	✓	✓	
Inland Empire Utilities Agency				✓	✓		
Chino Basin Watermaster	✓			✓			
Six Basins Watermaster	✓			✓			
California Department of Water Resources				✓			
California Department of Public Health					✓		
Santa Ana Watershed Project Authority					✓		
Water Facilities Authority					✓		
SAWCo Shareholders						✓	
General Public						✓	



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In addition to direct contact with interested stakeholders as shown in Table 2, SAWCo maintains the following relationships and partnerships related to water management issues in the region:

- ◆ SAWCo is a member of the California Urban Water Conservation Council and participates in the Best Management Practices (BMP) program.
- ◆ SAWCo has water service agreements with the Monte Vista Water District, the City of Upland, and the City of Ontario.
- ◆ SAWCo participates in the bi-monthly regional conservation workgroup meetings with the Inland Empire Utilities Agency and its affiliates.
- ◆ SAWCo is participating in the development of a management plan for the Cucamonga Basin in coordination with the Cucamonga Valley Water District and the Upland West End Consolidated Water Company.
- ◆ SAWCo participates in the management of Six Basins and the Chino Basin through coordination with the respective Watermasters.
- ◆ SAWCo is a member of the San Antonio Canyon Watershed Committee in partnership with the City of Pomona, the City of Upland and other local water entities working together to monitor source water quality and protect the quality of life in the San Antonio watershed.

1.5 Review

§10642 Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

§10642 Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.

§10645 Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.



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Multiple drafts were reviewed internally by SAWCo personnel. The SAWCo Board of Directors received a preliminary presentation of the final draft at a regular Board meeting, and provided comments and instructions for their vision of a complete and comprehensive document. The following stakeholders were notified of SAWCo's intent to adopt this UWMP at a public hearing, were extended an invitation soliciting comments, and were provided with an electronic copy of the final draft for review purposes (see Appendix N):

- ◆ general public
- ◆ City of Ontario
- ◆ Cucamonga Valley Water District
- ◆ City of Upland
- ◆ Monte Vista Water Company
- ◆ San Bernardino County
- ◆ Three Valleys Municipal Water District

Details of the review process can be found in Appendix R.

Following adoption and submittal, this UWMP will be available for public review at the San Antonio Water Company during normal business hours.

1.6 Adoption

§10621(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

§10642 After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

This UWMP was adopted June 21, 2011. The resolution of adoption can be found in Appendix O.

1.7 Submittal

§10644(a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or



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county within which the supplier provides water supplies within 30 days after adoption.

§10608.20 A 6-month extension has been granted for submittal of the 2010 UWMPs to provide additional time for suppliers to address the requirements for a 20% reduction from the "baseline daily per capita water use" by Dec. 31, 2020.

This UWMP was submitted July 20, 2011 to the following entities:

- ◆ California State Library
- ◆ California Department of Water Resources
- ◆ San Bernardino County
- ◆ City of Upland
- ◆ City of Ontario
- ◆ Inland Empire Utilities District
- ◆ Cucamonga Valley Water District
- ◆ Monte Vista Water District
- ◆ Santa Ana Watershed Project Authority
- ◆ Water Facilities Authority

1.8 Online Data Submittal

DWR is establishing an online data submittal portal for urban water suppliers. Suppliers will be able to go online and complete tables and download them into their plans. The portal, referred to as DOST (DWR Online Submittal Tool), will have an audit system to allow suppliers to double check they have submitted all the data. Suppliers who use the online data submittal system and have a state water grant or loan or have submitted a grant proposal will receive priority review. DWR sees on line data submittal as a way to speed up reviews, better manage the data received, standardize data reporting, and enable a direct linkage to the data used to prepare the California Water Plan.

SAWCo has opted not to participate in the online data submittal process at this time.



1.9 Implementation

§10643 An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

Pursuant to the Resolution of Adoption, SAWCo will implement this UWMP pending amendment.

1.10 Judicial Review

Any actions or proceedings to invalidate the decisions of an urban water supplier on the grounds of non-compliance with the UWMP Act must be commenced as follows:

- ◆ 90-Day Rule: Any action alleging that a plan, or action taken pursuant to the plan, does not comply with the UWMP Act must be commenced within 90 days after filing of the plan or amendment thereto with DWR.
- ◆ 18-Month Rule: Any action alleging failure to adopt a plan must be commenced within 18 months after that adoption is required by the UWMP Act.

In challenging the plan's compliance with the UWMP Act, judicial review is limited to whether there was a prejudicial abuse of discretion. These abuses are limited to the supplier not proceeding in a manner required by law or the plan not being supported by substantial evidence (§10651).

The UWMP standard of judicial review was established per *Sonoma County Water Coalition, et al. v. Sonoma County Water Agency*, California Court of Appeal for the Fourth District, Case No. A124556 (October 8, 2010) as:

“In technical matters requiring the assistance of experts and the study of marshaled scientific data as reflected herein, courts will permit administrative agencies to work out their problems with as little judicial interferences as possible.”

This means that the court acknowledges the complexities of collecting and interpreting data related to water supply and demand and defers to the knowledge of the water supplier and expertise of consultants providing their services on the supplier's behalf. No additional standards were deemed necessary by the court to validate conclusions related to collection and interpretation of data.



CHAPTER ONE – INTRODUCTION

SAN ANTONIO WATER COMPANY

In addition to diligence in data collection and interpretation, care was taken to present this UWMP as a legal document paying particular attention to the following areas of emphasis in order to avoid becoming a target for litigation:

- ◆ Expect this UWMP to be a litigation target.
- ◆ Disclose all physical and legal regulatory factors affecting projected availability of existing and planned future sources of water supply.
- ◆ Clearly describe the basis for each assumption about how those factors will affect supply availability.
- ◆ Clearly describe how projected water demand was calculated
- ◆ Disclose assumptions about the effect of water conservation measures on projected demand.
- ◆ Clearly describe the basis for conservation assumptions.

1.11 Acknowledgements

We, at **CIVILTEC engineering inc.**, would like to express our appreciation for the cooperation and valuable assistance of San Antonio Water Company. In particular, the efforts of the following people, proved to be invaluable:

- ◆ Charles Moorrees, General Manager
- ◆ Teri Layton, Assistant Manager – Administration and Finance



CHAPTER ONE – INTRODUCTION

SAN ANTONIO WATER COMPANY

1.12 Abbreviations

Following is a list of commonly used abbreviations that may be found in this UWMP.

AB	Assembly Bill
Act	Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
Baseline	base daily per capita water use
BMP	best management practice
CBDA	California Bay-Delta Authority
CCWRF	Carbon Canyon Wastewater Reclamation Facility
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CII	commercial, industrial, and institutional
CUWCC	California Urban Water Conservation Council
CVWD	Cucamonga Valley Water District
CWC	California Water Code
DBCP	dibromochloropropane
DMM	demand management measure
DOST	DWR online submittal tool
DPH	California Department of Public Health
DWR	California Department of Water Resources
GHG	greenhouse gas
GPCD	gallons per capita per day
IEUA	Inland Empire Utilities Agency
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
MOU	Memorandum of Understanding
MVWC	Monte Vista Water Company
OBMP	Optimum Basin Management Program
OSY	operating safe yield
PUSD	Pomona Utility Service District
SB	Senate Bill
State Water Board	State Water Resources Control Board
UWMP	Urban Water Management Plan
VWS	Verification of Water Supply
WECWCo	Upland West End Consolidated Water Company
WEI	Wildermuth Environmental, Inc.
WSA	Water Supply Assessment



CHAPTER TWO – SYSTEM DESCRIPTION

2.1 General Description

The San Antonio Water Company is a corporation which functions according to, and is bound by, its Bylaws. Those Bylaws, and their implementation, pertinent to preparing the various aspects of this Urban Water Management Plan (UWMP) have been summarized here for subsequent reference.

2.1.1 Purpose

SAWCo Bylaws §1.01 The specific purpose of the corporation is to develop, distribute, supply, and deliver water to its shareholders for irrigation, domestic, and all other useful purposes, in proportion to the number of shares of stock held by them respectively, at actual cost, and is not organized for the private gain of any person.

2.1.2 Right to Service

SAWCo Bylaws §10.01 No water shall be supplied by company to any one who is not a shareholder, and all water shall be supplied at cost. ...each shareholder shall be entitled to receive such part of the entire water of the company that is available for distribution as the number of shares of stock held by him bears to the number of shares outstanding.

There are 6,389 outstanding shares. SAWCo will issue no more shares; therefore the number of shares is finite.

The “entire water of the company” is equivalent to 16,573.85 AFY which represents a 10-year average established in 2005. This equates to an entitlement of 2.594 AFY per share. As such, water use projections related to population growth and density, land use, zoning, development and other typical indicators have no bearing on supply.

Water is supplied based on entitlement only. Entitlement is based on the number of shares held. Although finite in number, shares are a commodity which may be divided or sold. For this reason, even though the “entire water of the company” is known, the distribution of entitlement among the shareholders has an unpredictable nature due the liquidity of the shares. As such, current deliveries are no clear indicator of future entitlement distribution since transactions related to the acquisition of shares may occur at any time in accordance with California corporate law. SAWCo believes the level of analysis required to project the distribution of entitlement over the specified planning horizon is beyond the scope of the intent of the Urban Water Management Planning Act. Therefore, projected supply will be presented in terms of AFY per share rather than in terms of the total entitlement of individual shareholders.



CHAPTER TWO – SYSTEM DESCRIPTION

SAN ANTONIO WATER COMPANY

2.2 Service Area Description

§10631(a) Describe the service area of the supplier.

The bylaws of the San Antonio Water Company (SAWCo) specify the service area as being made up of a Basic Area and an Extended Area.

The Basic Area generally coincides with the community of San Antonio Heights which is located north of the City of Upland in unincorporated San Bernardino County as shown in Figure 1. The Basic Area is bounded on south by the City of Upland, on the north by the San Bernardino Mountains, on the west by the Los Angeles County Line and on the east by Cucamonga Creek. SAWCo provides retail service to all end users who reside in the Basic Area.

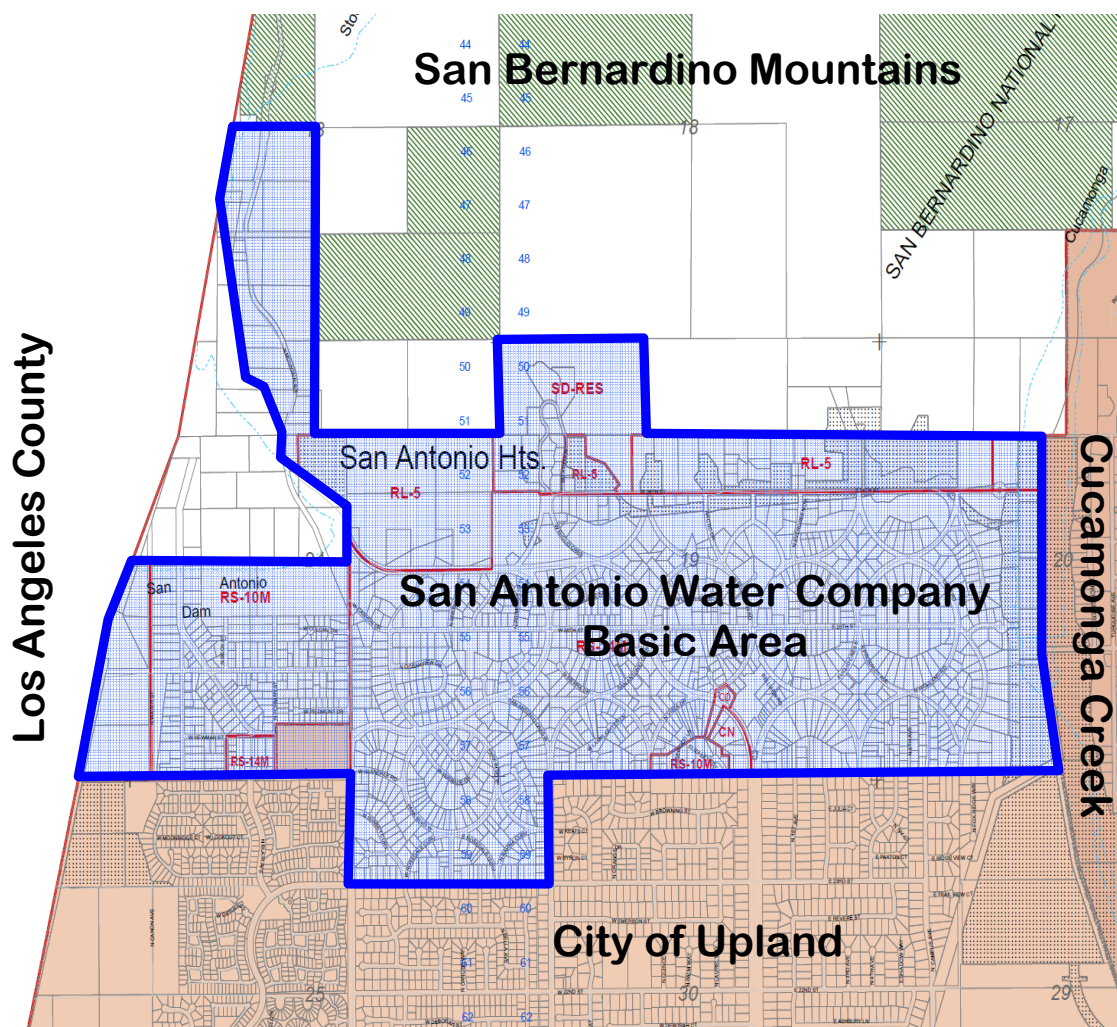
The description of the Extended Area is considerably more vague, stated as “all lands not included in the Basic Area.” SAWCo has a limited number of retail customers in the extended area including the Upland Hills Golf course, the Red Hill Golf Course, two rock companies and several grove irrigators. For purposes of this Urban Water Management Plan, all other water deliveries made in the Extended Area are considered to be to wholesale customers.



CHAPTER TWO – SYSTEM DESCRIPTION

SAN ANTONIO WATER COMPANY

Figure 1 – SAWCo Basic Area²



2.3 Climate

§10631(a) (Describe the service area) climate.

Historical precipitation data were collected at San Antonio Dam, which is located within the Basic Area; and other climate related information was provided by the IDcide.com website³, which is based on data compiled from the National Climactic Data Center, the National Oceanic and Atmospheric Administration and the National Weather Service.

² Base map courtesy of San Bernardino County Land Use Plan (Map ID FH19A – Mount Baldy)

³ IDcide website (<http://www.idcide.com/citydata/ca/san-antonio-heights.htm>) accessed March 22, 2011



CHAPTER TWO – SYSTEM DESCRIPTION

SAN ANTONIO WATER COMPANY

Based on typical conditions at the Pomona Fairplex weather station located 8.38 miles southwest of San Antonio Heights, the climate is warm during summer when temperatures tend to be in the 70's and cool during winter when temperatures tend to be in the 50's. The warmest month of the year is August with an average maximum temperature of 89.2°F, and the coldest month of the year is December with an average minimum temperature of 41.0 °F. Temperature tends to vary widely during summer variations with a difference that can reach 30°F between night and day. The winter variation is more moderate with an average difference of 26°F degrees.

Per the 2010 Six Basins Watermaster Annual Report Draft, precipitation at the San Antonio Dam in 2010 was measured at 38.4 inches; this is approximately 164% above the long-term average of 23.4 inches. Rainfall for the last 16 years has averaged 105% of normal with three years (1995, 1998, 2005 and 2010) registering over 150% of average. Precipitation in the late 2000s was close to average or significantly below average resulting in declining water levels; however, precipitation in 2010 was significantly above average resulting in increasing water levels in the northern portion of the Upper Claremont Heights Basin as of the end of the year.

2.4 Population

§10631(a) (Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . . (population projections) shall be in five-year increments to 20 years or as far as data is available.

Per the 2010 US Census, San Antonio Heights, which is coincident with the SAWCo Basic Area, had a population of 3,371. By inspection of the San Bernardino County Land Use Zoning District FH19A (Mount Baldy) map and current aerial photography, there are 93 undeveloped residential parcels not otherwise occupied by existing utility infrastructure (i.e. water tanks, pump stations, power line towers, flood controls structures, San Antonio Dam). Per the 2000 US Census, the average household size for San Antonio Heights is 3.1 persons per unit. Assuming that ultimate build-out occurs in 2035, this equates to an increase of 288 persons, or 57.6 persons every five years. Based on the preceding discussion, Table 3 provides the current and projected population in the Base Area.

Table 3 – Current and Projected Population

Year	2010	2015	2020	2025	2030	2035
Basic Area population	3,371	3,429	3,486	3,544	3,602	3,659



2.5 Demographics of the Basic Area

§10631(a) Describe . . . other demographic factors affecting the supplier's water management planning.

SAWCo serves retail customers in San Antonio Heights, an unincorporated portion of San Bernardino County north of the City of Upland. All retail customers are SAWCo shareholders. Per the 2000 US Census, the following demographics reflect San Antonio Heights:

- ◆ Median Age: 41.5
- ◆ Household Size: 2.91
- ◆ Median Household Income: \$81,460

The vast majority of San Antonio Heights is designated as RS-10M (single family residential with a minimum lot size of 10,000 square feet) and RS-14M (single family residential with a minimum lot size of 14,000 square feet) per the San Bernardino County General Plan; however, most lots are much larger than the prescribed minimum lot size due to the irregular layout of lot lines and right-of-ways, and the also due to the terrain which becomes increasingly steep to the north. There are no schools, no industrial development and very limited commercial land use.

2.6 Demographics of the Extended Area

SAWCo delivers large volumes of water to shareholders in the Extended Area for purposes of large landscape irrigation, industrial use, agricultural use and wholesale. Land use and planning in the Extended Area are under the jurisdiction of numerous cities and San Bernardino County. There is no unifying demographic in the Extended Area and SAWCo defers such delineation to responsible agencies.



CHAPTER THREE – SYSTEM DEMANDS

3.1 General Description

Generally, demand may not exceed entitlement. Supply is provided to each shareholder based on their entitlement which is equivalent to 2.594 AFY per share. If a shareholder exceeds their entitlement, they pay the tiered rate. The only water available to those who exceed their entitlement is from shareholders who do not use their entire entitlement. There is no carry-over of entitlement from year to year or month to month except under existing service agreements.

3.2 Historical Water Demands

§10631(e)(1) and (2) Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural.

Actual past and current deliveries for 2005 and 2010 are included in Table 4.

Table 4 – Actual Water Deliveries for 2005 and 2010

Water Use Sectors		2005 (AFY)	2010 (AFY)
Basic Area	Single-family Residential	1,350.80	1,287.20
	Multi-family Residential	23.50	23.60
	Commercial	27.90	19.20
	Institutional and Governmental	25.73	11.25
	Landscape	0.42	0.01
Extended Area	Industrial	993.49	281.50
	Institutional and Governmental	1.27	1.07
	Landscape	17.46	12.48
	Agricultural	506.70	805.84
	Wholesale ⁴	9,211.78	11,224.38
Total		12,236.70	13,654.00

⁴ Wholesale is considered to be all deliveries that occur outside the Basic Area except agricultural and industrial.



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For purposes of reporting water deliveries and to assist the reader in developing an understanding of the distribution of deliveries made by SAWCo, a distinction has been made between shareholders in the Basic Area and the Extended Area.

Table 5 includes all other past and current water uses for 2005 and 2010, specifically groundwater recharge and system losses. By definition, these water uses are not tied to an area designated for delivery to shareholders.

Table 5 – Actual Groundwater Recharge and System Losses for 2005 and 2010

Water Use or Loss	2005 (AFY)	2010 (AFY)
Groundwater Recharge	9,018.2 ⁵	3,999.4
System Losses	570.8	194.4
Total	9,589.0	4,193.8

3.3 Projected Water Demands

§10631(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

§10631.1(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

⁵ Groundwater recharge was unusually high in 2005 due to a storm event in January and February of that year.



CHAPTER THREE – SYSTEM DEMANDS

SAN ANTONIO WATER COMPANY

Projected water use, as shown in Table 6, is based on the following assumptions:

- ◆ Single-family and multi-family residential, which is specific to the retail area, is based on a six-year average from 2005 to 2010 which has been adjusted proportionally to population growth within the Basic Area per Table 3.
- ◆ Commercial, Institutional and Governmental, and Landscape water use specific to the Basic Area, is based on a six-year average from 2005 to 2010 and is anticipated to remain unchanged in the future.
- ◆ Deliveries in the Extended Area are based on a six-year average from 2005 to 2010.
- ◆ The volume of water attributed to inactive or underused shares represents the difference between the total entitlement of 16,573.85 AFY and the total projected water use by sector. SAWCo has an obligation to account for the potential fulfillment of the entitlement represented by these shares regardless of their historical disposition.
- ◆ Total deliveries are considered to be constant and static as described in §2.1.2 at 16,573.85 AFY.

Table 6 – Projected Water Deliveries through 2035

Water Use Sectors		2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Basic Area	Single-family Residential	1,513.0	1,538.2	1,563.8	1,589.4	1,614.5
	Multi-family Residential	24.9	25.3	25.7	26.1	26.5
	Commercial	23.6	23.6	23.6	23.6	23.6
	Institutional & Governmental	18.5	18.5	18.5	18.5	18.5
	Landscape	0.2	0.2	0.2	0.2	0.2
Inactive or Underused Shares		2,821.9	2,821.9	2,796.4	2,770.4	2,744.3
Extended Area		12,171.8	12,171.8	12,171.8	12,171.8	12,171.8
Total Deliveries		16,573.9	16,573.9	16,573.9	16,573.9	16,573.9



CHAPTER THREE – SYSTEM DEMANDS

SAN ANTONIO WATER COMPANY

Table 7 provides projection for water uses other delivery to shareholders. These projections are based on the following assumptions:

- Groundwater recharge is dependent on the availability of surface water from San Antonio Canyon and nonuse or underuse of entitlement. No changes in the availability of recharge water are anticipated; therefore, the projection is based on a six-year average from 2005 to 2010.
- System losses are based on a six-year average from 2005 to 2010. During this period, losses ranged from -1,115.1 to +356.1 AFY on an annual basis.⁶

Table 7 – Projected Additional Uses and Losses through 2035

Water Use or Loss	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Groundwater Recharge	4,287.6	4,287.6	4,287.6	4,287.6	4,287.6
System Losses	228.0	228.0	228.0	228.0	228.0
Total	4,515.6	4,515.6	4,515.6	4,515.6	4,515.6

3.4 Low-income Water Demands

San Antonio Heights is located in unincorporated San Bernardino County. The 2007 Housing Element of the San Bernardino County General Plan provides extensive analysis of the current and projected needs for low-income housing in the county. A housing development plan has been implemented in coordination with the Regional Housing Needs Assessment conducted by the Southern California Association of Governments. The General Plan identifies San Antonio Heights as within the Sphere of Influence of the City of Upland and has determined that there is no potential for lower income housing development in this vicinity. Based on the determination of San Bernardino County, the projected low-income water demand within SAWCo's retail area is zero.

⁶ Regarding negative system losses: System losses are calculated as the difference between production and delivery. Production is monitored and recorded continuously. Deliveries are recorded bimonthly. The recording periods for production and delivery do not necessarily coincide. As a result, calculations of system losses on an annual basis may appear to be skewed. This discrepancy converges when multiple consecutive years are considered. SAWCo is confident that the precision of its production and delivery meters provides an accurate account of all water in the system.



CHAPTER THREE – SYSTEM DEMANDS

SAN ANTONIO WATER COMPANY

3.5 Summary of Water Demands

Table 8 is a compilation the historical, present and projected water uses as presented in the previous sections of this chapter.

Table 8 – Total Water Use

Water Use	2005 (AFY)	2010 (AFY)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Water Deliveries	12,236.7	13,654.0	16,573.9	16,573.9	16,573.9	16,573.9	16,573.9
Recharge and Loss	9,589.0	4,193.8	4,515.6	4,515.6	4,515.6	4,515.6	4,515.6
Total	21,825.7	17,847.8	21,089.5	21,089.5	21,089.5	21,089.5	21,089.5

3.6 Support for Water Demand Reduction

§10608.26 Urban wholesale water suppliers shall include in the urban water management plans . . . an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part (10608.36).

SAWCo is a member of the California Urban Water Conservation Council. An assessment of the Best Management Practices associated with this membership is described and detailed in Chapter 6. As a wholesaler, SAWCo's primary responsibility is to provide a reliable source of water to its shareholders. To that end, SAWCo helps facilitate the annual San Antonio Watershed Clean Up Day.



CHAPTER FOUR – SYSTEM SUPPLIES

4.1 General Description

Water supply for SAWCo is a mixture of surface water from San Antonio Creek and groundwater from the San Antonio Tunnel and three area basins: Chino Basin, Cucamonga Basin and Six Basins. Table 9 provides a working summary of typical rights and availability, and anticipated annual production from each source. There a great deal of flexibility built into the management of SAWCo's sources which is used to accommodate surpluses and deficits in a manner that provides consistent supply from year to year.

Table 9 – Summary of System Supplies

Source of Supply	Annual Rights (AFY)	Average Annual Production (AFY)	Percent of Annual Rights Used on Average
San Antonio Creek	13,864.610	5,019.000	37%
San Antonio Tunnel	2,507.000	2,507.000	100%
Chino Basin	1,506.888	1,506.888	100%
Cucamonga Basin	6,500.000	6,500.000	100%
Six Basins	1,254.000	1,112.000	89%
Total	25,632.498	16,644.888	65%

4.2 Water Sources

§10631(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

Table 10 provides current and projected supply totals. No new sources of supply are anticipated to be developed over the planning horizon. Projected supply is based on the average annual production per Table 9.

Table 10 – Current and Projected Water Supplies

Water Supply	2010 (AFY)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Groundwater	9,402.6	11,625.9	11,625.9	11,625.9	11,625.9	11,625.9
Surface Water	7,790.0	5,019.0	5,019.0	5,019.0	5,019.0	5,019.0
Total	17,192.6	16,644.9	16,644.9	16,644.9	16,644.9	16,644.9



4.4 Surface Water

SAWCo has rights to surface flow from San Antonio Creek, which appear to be pre-1914 rights and over the years have been supported by Court Judgments per a report entitled “Opinion Re Water Rights of San Antonio Water Company,” dated June 1993, prepared by the law firm of Lagerlof, Senecal, Drescher & Swift (see Appendix C). These water rights are expressed in “miner’s inches”. Fifty miner’s inches are equivalent to one cubic foot per second (cfs).

A portion of San Antonio Creek runoff is diverted via a penstock to the “Edison Power House”. Following generation of electrical power, all flows are directed to the “Edison Box” (a.k.a. division dam). It is at this location the flows are divided, with 60 percent of all flow directed to SAWCo and the remaining 40 percent directed to the Pomona Utility Service District (PUSD). Water not diverted at the “Middle Intake” flows along the stream bed and is channeled to the west side of the channel to SAWCo’s Edison Ponds then to the Edison Box.

SAWCo has surface water rights in the San Antonio Canyon as follows:

- ◆ SAWCo has rights to the first 17 percent of all flow from San Antonio Creek
- ◆ After deducting 17 percent of the total flow, SAWCo has a priority to the next 18 miner’s inches (0.36 cfs) of the remaining flow
- ◆ After deducting the 17 percent of the total flow and the 18 miner’s inches (0.36 cfs), the balance is divided equally between SAWCo and the PUSD, until PUSD’s share equals 312 miner’s inches (6.24 cfs).

In addition to the aforementioned allocation of surface water rights between SAWCo and the PUSD, the allocations are also grouped into the following periods:

- ◆ Period 1: January 1 to March 31
- ◆ Period 2: April 1 to December 31 of each year.

Period 1: January 1 to March 31

PUSD is entitled to take up to 312 miner’s inches (6.24 cfs), which occurs when the total flow in San Antonio Creek is 773.5 miner’s inches (15.47 cfs); in other words, 312 miner’s inches (6.24 cfs) to PUSD and 461.5 miner’s inches (9.23 cfs) to SAWCo. SAWCo is then entitled to divert all additional flow as long as its total diversion does not exceed 740 miner’s inches (14.80 cfs). This equates to a total flow in San Antonio Creek at the powerhouse diversion pipeline of about 1,052 miner’s inches (21.04 cfs). SAWCo is entitled to 100 percent of the San Antonio Creek flows between 773.5 miner’s inches (15.47 cfs) and 1,052 miner’s inches (21.04 cfs).



Period 2: April 1 to December 31

PUSD is entitled to take up to 312 miner's inches (6.24 cfs), which occurs when the total flow in San Antonio Creek is 773.5 miner's inches (15.47 cfs); in other words, 312 miner's inches (6.24 cfs) to PUSD and 461.5 miner's inches (9.23 cfs) to SAWCo. SAWCo is then entitled to divert all of the additional flow as long as its total diversion does not exceed up to 965 miner's inches (19.30 cfs). This equates to a total flow in San Antonio Creek at the powerhouse diversion pipeline of about 1,277 miner's inches (25.54 cfs). SAWCo is entitled to 100 percent of the flows between 773.5 miner's inches (15.47 cfs) and 1,277 miner's inches (25.54 cfs).

In the event that flow in San Antonio Creek exceeds 10,000 miner's inches (200 cfs), SAWCo could divert for spreading an additional 500 miner's inches (20 cfs).

4.3 Groundwater

§10631(b) (Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .

§10631(b)(1) (Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

§10631(b)(2) (Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board. (Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

§10631(b)(3) (Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.



CHAPTER FOUR – SYSTEM SUPPLIES

SAN ANTONIO WATER COMPANY

§10631(b)(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

SAWCo utilizes various groundwater sources including the San Antonio Tunnel and groundwater wells in Chino Basin, Cucamonga Basin and Six Basins. All of these sources are adjudicated. SAWCo also engages in spreading operations that enhance the groundwater supply available to SAWCo. These groundwater sources are described in the following sections.

4.3.1 San Antonio Tunnel

SAWCo has rights to all water flowing in the San Antonio Tunnel, a deep rock 4-foot by 4-foot rectangular tunnel situated approximately 100 feet below the ground surface supported by redwood beams and solid rock.

The deep rock tunnel is fed by groundwater that naturally percolates through the subsurface. Tunnel flow is augmented by groundwater wells. Surface water from the San Antonio Canyon is also diverted to spreading grounds north of the tunnel.

4.3.2 Six Basins

The Six Basins area is bounded to the south by the San Jose Hills, to the east by the Chino Basin, to the north by the San Gabriel Mountains, and west by the Main San Gabriel Basin. The Six Basins area consists of six interconnected groundwater basins, which includes the “Four Basins” (Canyon Basin, Upper Claremont Heights Basin, Lower Claremont Heights Basin, and Pomona Basin) and the “Two Basins” (Live Oak Basin and Ganesha Basin) as shown in Figure 2.

SAWCo operates groundwater wells overlying the Upper Claremont Heights Basin and owns rights to produce groundwater from the Four Basins area equivalent to 7.166% of the operating safe yield (OSY) of the Four Basins as set forth in the Six Basins Judgment (see Appendix D). Characteristics of the Judgment include the following actions:

- ◆ sets out the safe yield for Six Basins inclusive of active spreading and imported water return flows
- ◆ establishes procedure for setting annual operating safe yield for 4 of the 6 basins (Canyon, Upper and Lower Claremont Heights, and Pomona basins)
- ◆ allows overproduction but with obligation for replacement water
- ◆ establishes annual surface water and groundwater production rights



CHAPTER FOUR – SYSTEM SUPPLIES

SAN ANTONIO WATER COMPANY

- provides for storage and recovery beyond annual production rights
- establishes a watermaster
- allows portability of rights within the Four Basins subject to specified conditions
- sets out priorities for use of groundwater storage capacity

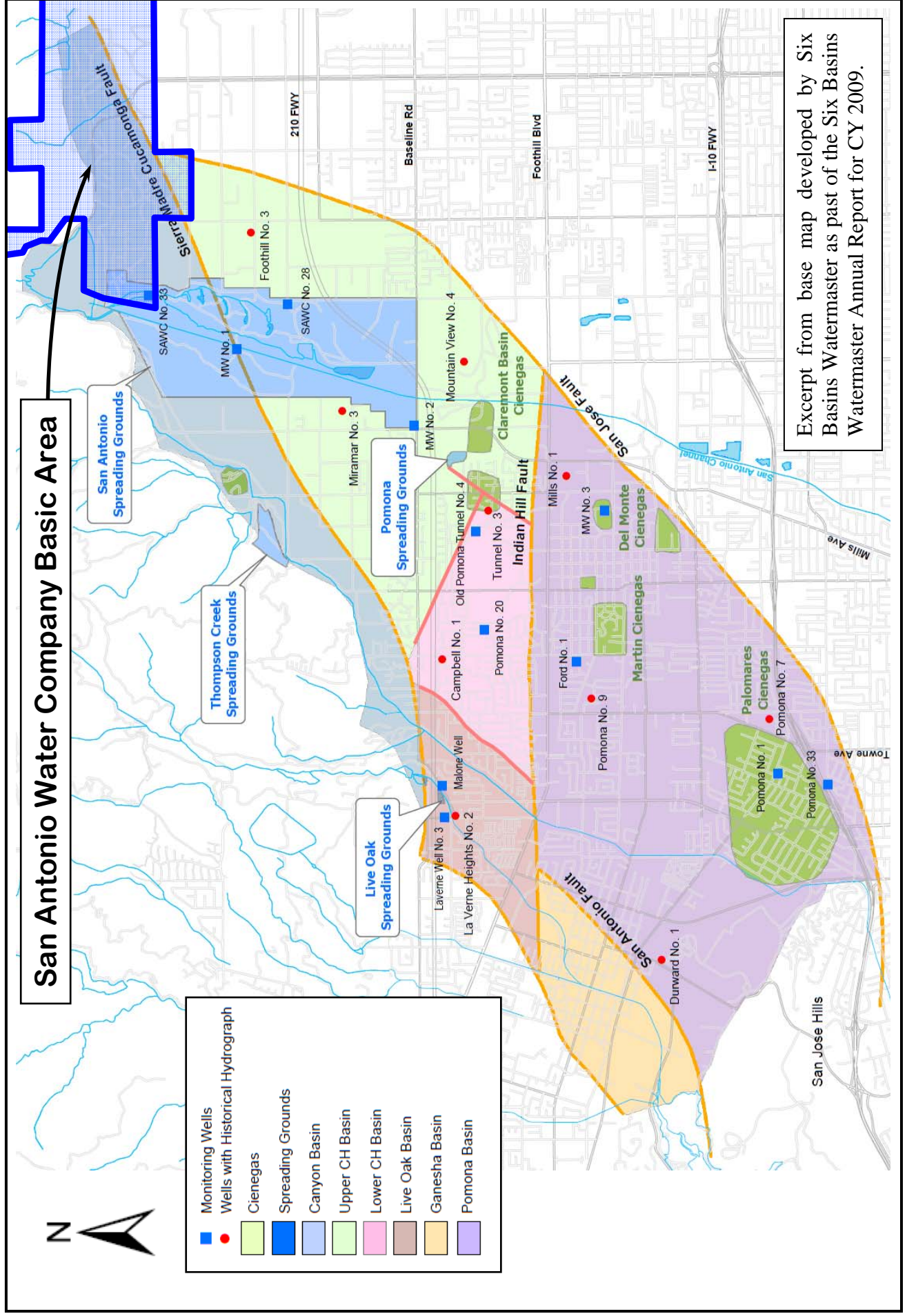
The OSY is determined annually by the Six Basins Watermaster and has ranged between about 17,000 AFY and 24,000 since 1999. Management of Six Basins and the duties of the Six Basins Watermaster were overseen by Three Valleys Municipal Water District until April 2011 when those responsibilities were transferred to Wildermuth Environmental, Inc. (WEI). The Rules and Regulations of the Six Basins Watermaster are included in Appendix E.

In 2006, SAWCo established a Storage and Recovery account with the Six Basins Watermaster that allows SAWCo to recharge at a rate not to exceed 1,000 AFY with a maximum limitation of 2,000 AF for up to two years.

The Six Basin Judgment did not allocate any production rights from the Two Basins to SAWCo. In addition, rights are not transferable between Four Basins and Two Basins. However, rights may be transferable from within the Four Basins if certain conditions are met.

Appropriators like SAWCo, who are party to the Six Basins Judgment, are authorized to produce groundwater in addition to the allocated amounts within the Four Basins. Such extractions result in an assessment by the Six Basins Watermaster to pay for the administration of Four Basins. Water to replenish Four Basins is purchased from the Metropolitan Water District of Southern California via Three Valleys Municipal Water District, inter-agency transfers, or the Inland Empire Utilities Agency in coordination with the Six Basins Watermaster.

Figure 2 – Extent of Six Basins





4.3.3 Cucamonga Basin

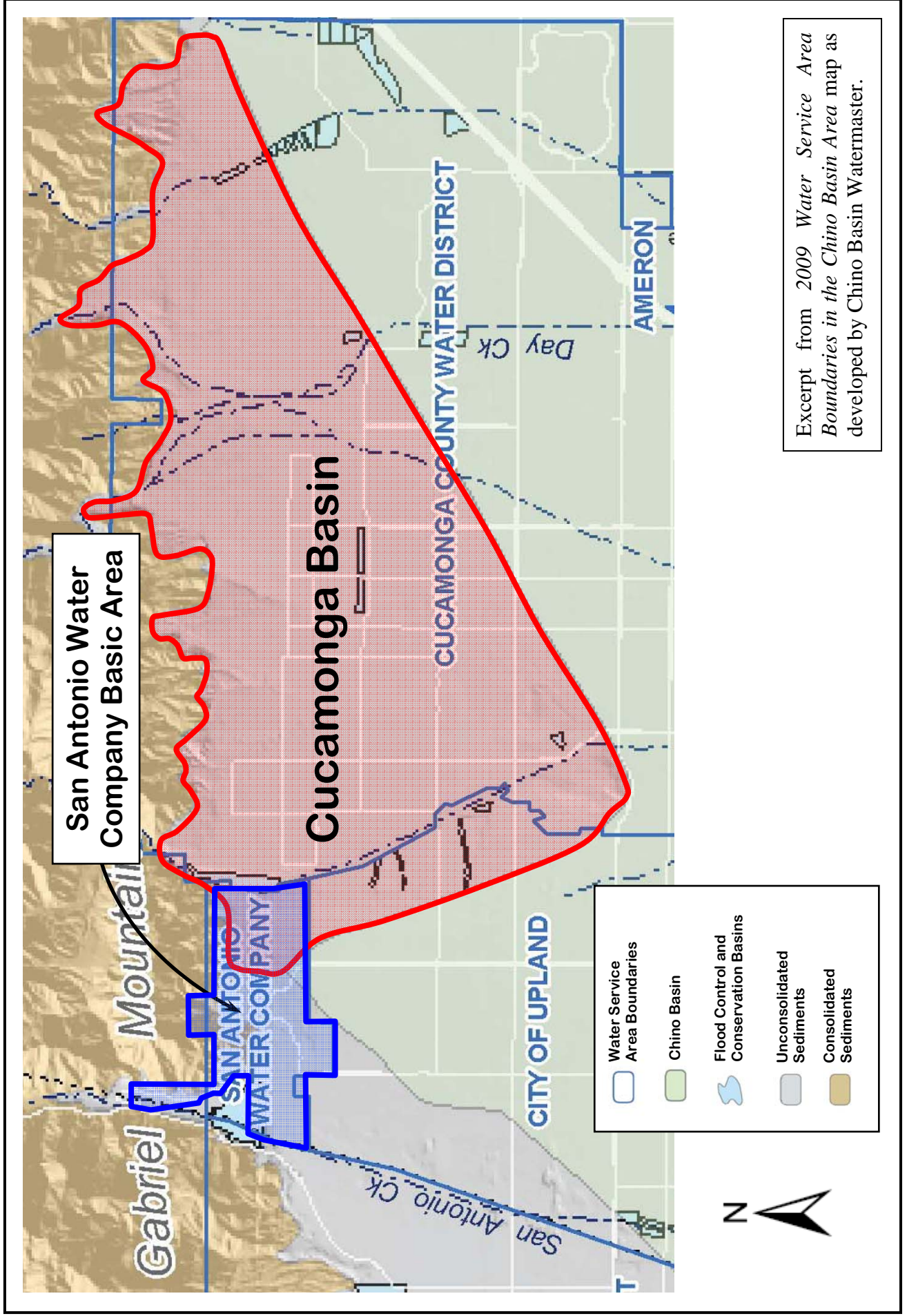
Cucamonga Basin is located east and north of the Red Hill Fault in the northeastern section of the City of Upland as shown in Figure 3. In 1958, a stipulated Cucamonga Basin Judgment (see Appendix F) allocated groundwater within the Cucamonga Basin to 24 stipulating parties, which today consists of SAWCo, Upland West End Consolidated Water Company (WECWCo), and Cucamonga Valley Water District (CVWD).

The Cucamonga Basin judgment stipulates SAWCo's water production as 6,500 AFY provided, SAWCo spreads an average 2,000 AFY of imported water from San Antonio Canyon into the Cucamonga Basin, based on a 10 year rolling average. However, if SAWCo's average annual spreading is less than 2,000 AFY during the ten year average, SAWCo's stipulated water right of 6,500 AFY can be reduced by up to 2,000 AFY, to a minimum total of 4,500 AFY.

Conversely, if SAWCo's average annual spreading is more than 2,000 AFY, SAWCo's stipulated water right of 6,500 AFY can be increased by up to 2,000 AFY, to a maximum total of 8,500 AFY. Only 95 percent of the water spread (up to a maximum of 2,105 AF spread), can be used to augment SAWCo's stipulated right above 6,500 AFY.

The Judgment specifies water rights for individual groundwater producers and specifies the amount that can be exported to non-overlying areas for use by individual producer. The Judgment specifies requirements for spreading. No annual report is currently prepared to document implementation of judgment requirements. There are currently discussions underway regarding revising the management of the Cucamonga Basin to modernize the Judgment, establish Cucamonga Valley Water District as Watermaster and establish storage accounts.

Figure 3 – Extent of Cucamonga Basin





4.3.4 Chino Basin

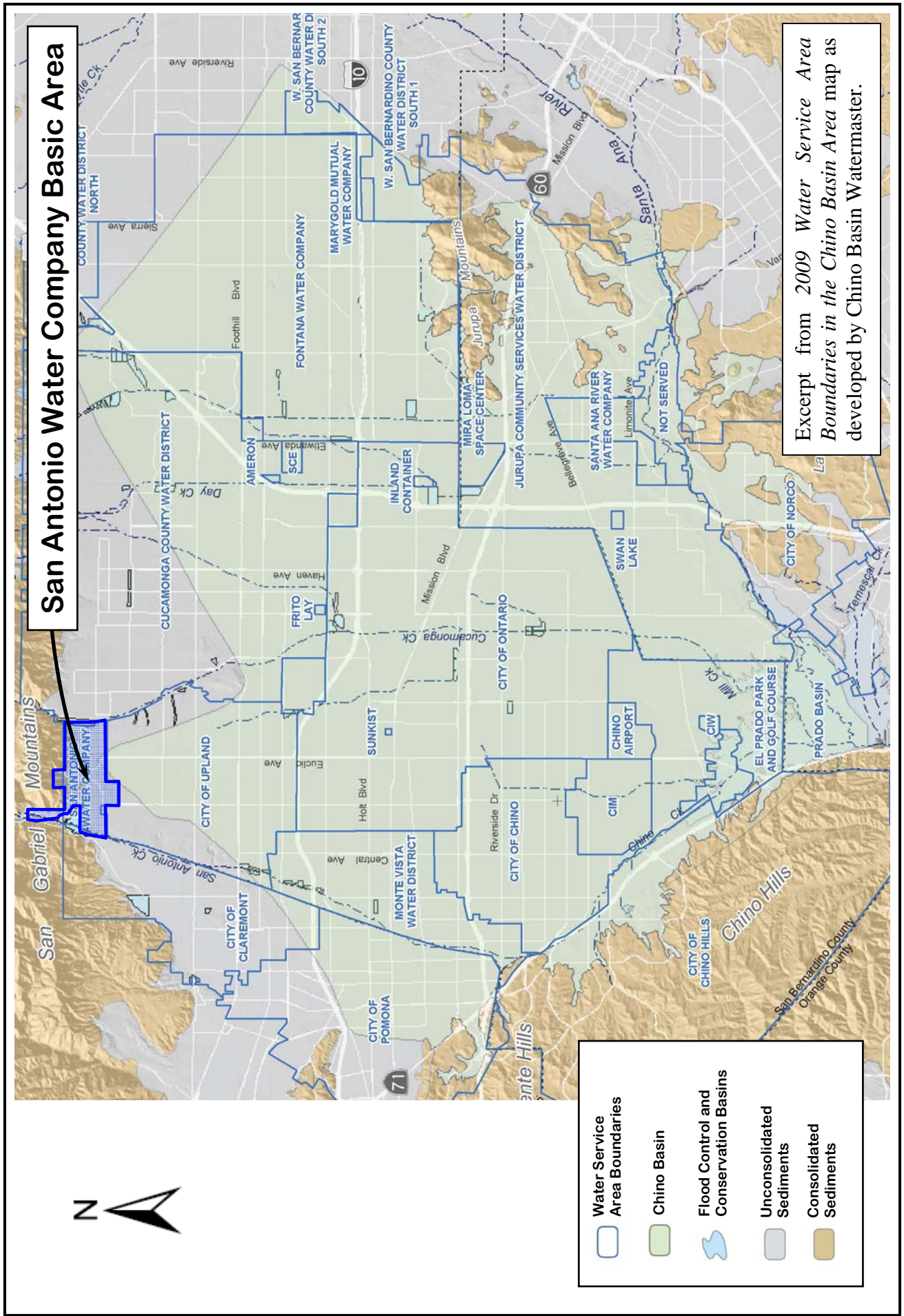
SAWCo overlies the northwesterly portion of the Chino Basin as shown in Figure 4.

Water rights in the Chino Basin were adjudicated in January 1978, and the Chino Basin's safe yield was established as 140,000 AFY. The safe yield is defined in the Chino Basin Judgment (see Appendix G) as "the long-term average annual quantity of ground water (excluding replenishment of stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Chino Basin under conditions of a particular year without causing an undesirable result." The 1978 Chino Basin Judgment's allocation of the safe yield of the Chino Basin includes three separate Pools: the Overlying Agricultural Pool, Overlying Non-Agricultural Pool, and the Appropriative Pool. SAWCo is a member of the Appropriative Pool and has an appropriative right of 2.748 percent of the total appropriative rights in the Chino Basin. Although subject to change, the OSY of the Chino Basin has historically been 54,834 AFY, of which SAWCo is entitled to 1,506.888 AFY.

In addition, the Chino Basin Watermaster reallocates the unused portion of the Chino Basin safe yield from the Overlying Agricultural Pool to the Appropriative Pool members as a supplement to the Appropriative Pool share of OSY rights in any year. These transfers are permanent if agricultural land has been converted to non-agricultural use, or temporary if agricultural pool extractions are less than their share of the safe yield. As agricultural production declines within the Chino Basin, the reallocation of water to the Appropriative Pool is expected to increase. Appropriators, like SAWCo, who are party to the Chino Basin Judgment are authorized to continue to produce groundwater while exceeding their water rights. Such extractions result in assessments by the Chino Basin Watermaster to pay for water to replenish the basin, through imported surface water recharge. Water to replenish the Chino Basin is purchased from the Metropolitan Water District of Southern California by Chino Basin Watermaster in coordination with the Inland Empire Utilities Agency or from Appropriation Pool participants.

The Chino Basin Watermaster Thirty-Second Annual Report, which includes historical details on the management of the Chino Basin, is included in Appendix H. The Judgment appoints Chino Basin Watermaster to administer and enforce the Judgment and any subsequent instructions or orders of the Court. The Judgment provides numeric value for natural safe yield and allocates this natural safe yield among three pools of producers. The judgment also provides for 5,000 AFY (200,000 AF of controlled overdraft averaged over 40 years). Pumping in excess of safe yield is allowed, but incurs a replenishment obligation. The Judgment expressly provides for groundwater storage and conjunctive use.

Figure 4 – Extent of Chino Basin





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The Court directed the Watermaster to develop the Optimum Basin Management Program (OBMP) addressing enhancement of basin water supplies, protection and enhancement of water quality, enhancement of basin management, and equitable financing of the OBMP. The Chino Basin Optimum Basin Management Program is provided in Appendix I. In 2004, the Water Quality Control Board, Santa Ana Region, incorporated the Maximum Benefit Basin Plan into its Water Quality Control Plan for the Santa Ana River Basin.

4.3.5 Groundwater Summary

Table 11 provides a summary of groundwater production over the past five years.

Table 11 – Groundwater Production for Last Five Years

Groundwater Source	2006 (AFY)	2007 (AFY)	2008 (AFY)	2009 (AFY)	2010 (AFY)
Six Basins	1,534.7	1,790.2	750.4	634.1	751.2
Cucamonga Basin	7,033.9	8,148.6	6,029.9	6,185.0	4,522.5
Chino Basin	1,416.0	1,472.4	919.2	2,117.0	1,551.5
San Antonio Tunnel	3,084.7	2,300.4	2,523.1	2,667.5	2,577.5
Total ⁷	13,069.3	11,921.4	10,222.6	10,969.5	9,402.6

Table 12 provides projected groundwater production based on average annual production per Table 9.

Table 12 – Projected Groundwater Production

Groundwater Source	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
San Antonio Tunnel ⁸	2,507.0	2,507.0	2,507.0	2,507.0	2,507.0
Chino Basin	1,506.9	1,506.9	1,506.9	1,506.9	1,506.9
Cucamonga Basin	6,500.0	6,500.0	6,500.0	6,500.0	6,500.0
Six Basins	1,112.0	1,112.0	1,112.0	1,112.0	1,112.0
Total	11,625.9	11,625.9	11,625.9	11,625.9	11,625.9

⁷ A portion of the groundwater pumped from the Chino Basin and the Cucamonga Basin is used to augment supply when San Antonio Tunnel production diminishes.

⁸ Production from San Antonio Tunnel is anticipated to increase by 40% when tunnel flow exceeds 4 cubic feet per second during normal and wet years.



4.5 Transfer Opportunities

§10631(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

SAWCo maintains indirect connections to the Monte Vista Water Company (MVWC) and the City of Ontario, and direct connections to the City of Upland. The feasibility of using these inter-agency connections for transfers or exchanges is currently being explored.

SAWCo leases groundwater rights to certain entities who hold SAWCo shares and operate production facilities in common basins. These include the Cities of Fontana, Ontario, Chino and Upland, and the Cucamonga Valley Water District, the Monte Vista Water District, the Jurupa Community Services Water District and Three Valleys Municipal Water District. The volume leased varies from year to year and is limited by the entitlement of the leasing party.

Table 13 – Existing Transfer Agreements

Agency in Receipt of Transfer from SAWCo	Transfer or Exchange	Term	Proposed Volume (AFY)
City of Ontario	Transfer	2009-2013 and subject to renewal	All or a portion of SAWCo entitlement (currently up to 765.266 AFY)
City of Upland	Transfer	2009-2013	All or a portion of SAWCo entitlement (currently up to 11,249.155 AFY)
MVWD	Transfer	2011-2015 and subject to renewal	All or a portion of SAWCo entitlement (currently up to 790 AFY)

4.6 Desalinated Water Opportunities

§10631(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

SAWCo's water sources are limited to local surface water runoff and those groundwater basins that underlie the Basic Area. There are no opportunities for desalination in this region.



4.7 Recycled Water and SAWCo

§10633 Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

§10633(a) (Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

§10633(b) (Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

§10633(c) (Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

§10633(d) (Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

§10633(e) (Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

§10633(f) (Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

§10633(g) (Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

SAWCo has sufficient supplies to meet all obligations to its shareholders through the planning horizon. SAWCo does not have the means or impetus to develop recycled water as a new source. Nonetheless, SAWCo encourages and supports the development



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of recycled water as a regional resource through its affiliation with the Inland Empire Utilities Agency and member agencies. If a current shareholder's supply is converted to recycled water through his own efforts, the efforts of a local purveyor or in coordination with regional recycled water planning, SAWCo shares then held would be at the purview of the shareholder who may chose to lease, sell or render inactive those shares as provided by and in accordance with the SAWCo Bylaws.

The 2005 SAWCo UWMP projected zero recycled water use in 2010, and this assessment is still valid. No recycled water use is projected within the Basic Area through the planning horizon and any conversion to recycled water that occurs in the Extended Area will have no impact on entitlement.

Per the Housing Element of the San Bernardino County General Plan, San Antonio Heights continues to rely on septic tanks for wastewater disposal. Per the San Antonio Heights Gazette (Issue #39, April 2008), septic sewer systems are installed at most San Antonio Heights homes. As a result, the contribution to wastewater generation made by residents within the retail area is considered to be negligible.

4.7.1 Conversion of Upland Hills Country Club to Recycled Water

The City of Upland, in cooperation with the Inland Empire Utilities Agency, has initiated a \$20-million project to provide recycled water for landscape irrigation, industrial use and groundwater recharge. One of the proposed end users for this project is the Upland Hills Country Club who is a current SAWCo shareholder receiving retail supply from SAWCo.

4.7.2 Conversion of Red Hill Country Club to Recycled Water

The Cucamonga Valley Water District, in cooperation with the Inland Empire Utilities Agency, has initiated a \$27-million project to provide recycled water to portions of the Cities of Upland, Ontario and Rancho Cucamonga for irrigation of "parks, golf courses, center medians and other landscaped areas" according to the California Coastkeeper Alliance. One of the proposed end users for this project is the Red Hill Country Club who is a current SAWCo shareholder receiving retail supply from SAWCo.



4.8 IEUA Recycled Water Program

The overall goal of the IEUA Recycled Water Program is to encourage maximum use of the recycled water resource for beneficial purposes, thereby conserving water within the Chino Basin and reducing the dependency on imported water.

4.8.1 Wastewater Collection and Treatment

Per the IEUA 2010 Urban Water Management Plan (see Appendix S), IEUA manages the Regional Sewage Service System within its 242-square miles service area to collect, treat and dispose of wastewater delivered by contracting local agencies. IEUA's facilities serve seven contracting agencies:

- ◆ City of Chino
- ◆ City of Chino Hills
- ◆ City of Fontana
- ◆ City of Montclair
- ◆ City of Ontario
- ◆ City of Upland
- ◆ Cucamonga Valley Water District

A system of regional trunk and interceptor sewers convey sewage to five regional wastewater treatment plants, all owned and operated by IEUA.

- ◆ Regional Treatment Plant No. 1 (RP-1) began operation in 1948 through a joint powers agreement between the cities of Ontario and Upland. IEUA, then known as Chino Basin Municipal Water District, purchased RP-1 in January 1973. The current capacity is 44 MGD and is projected to be expanded to an ultimate capacity of 60 MGD after 2020. RP-1 serves all or part of the Cities of Ontario, Rancho Cucamonga, Upland, Montclair, Fontana and unincorporated areas of San Bernardino County.
- ◆ Regional Treatment Plant No. 2 (RP-2) began operation in 1960 to serve the City of Chino and the Chino Hills area. Subsequent improvements were made to increase capacity to 5 MGD and to meet stringent water quality requirements. Because RP-2 sits in a flood prone area, much of the facility has been shut down and all liquid wastes have been diverted to the new RP-5 facility. RP-2 continues to handle wastewater biosolids generated by RP-5 and CCWRF.



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- The Carbon Canyon Wastewater Reclamation Facility (CCWRF) has been in operation since 1992. The recycled water plant capacity is 11.4 MGD, while solids are treated at RP-2. CCWRF serves the cities of Chino, Chino Hills, Montclair and Upland.
- Regional Treatment Plant No. 4 (RP-4) was completed in 1997. This facility was recently expanded to 14 MGD. RP-4 serves the Cucamonga Valley Water District, the City of Fontana and unincorporated areas of San Bernardino County in the northeast portion of the IEUA service area.
- Regional Treatment Plant No. 5 (RP-5) began operation in March 2004. This 16.3 MGD plant serves existing development and the planned development occurring in the cities of Chino, Chino Hills and Ontario. Initial investigations for expansion to 21 MGD are underway.

All of IEUA's wastewater treatment plants produce recycled water that meets or exceeds the requirements of the State of California Department of Health Services (DHS) Title 22 for recycled water. The raw sewerage is passed through screening and grit removal units, primary clarifiers, aeration basins, secondary clarifiers, chemical addition, tertiary filters, chlorination, and dechlorination facilities prior to discharge.

4.8.2 Recycled Water Use

Currently, IEUA produces about 60,000 AFY of recycled water. In 2009, recycled water use totaled about 32,362 AF of which 12,970 AF was used for outdoor irrigation, 2,106 AF was used for industrial processes, 10,993 AF was used for agriculture and 6,294 AF was used for groundwater recharge. As a result, of a revised region-wide permit, groundwater recharge will increase rapidly over the next few years. The remaining volume of recycled water, about 32,638 AF, was discharged to the Santa Ana River.

4.8.3 Recycled Water Incentives for Industrial Use

IEUA maintains a special pipeline for industries which produce wastewater that cannot be treated with conventional technologies before being placed ultimately in the Santa Ana River or being used in IEUA Recycled Water Program. This special pipeline carries industrial waste to be treated by the Los Angeles County Sanitation Districts whose facilities are appropriately equipped to handle it. In order to encourage recycled water use among industrial users, IEUA has established the following incentives:

- **Recycled Water Rate** – IEUA's rate for recycled water delivered to a contracting agency is \$95 per acre-foot for direct deliveries and \$115/AF for groundwater recharge. The retail water utilities that have established a recycled water rate are offering it at a 30% to 50% discount from their potable rate. In addition, IEUA currently offers a discount to industrial customers using recycled water of 25% of IEUA's recycled water rate.



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- ◆ **Reliability** – Recycled water is a reliable resource not subject to droughts or imported water availability. Existing potable service also remains available as a backup to recycled water, improving reliability.
- ◆ **Mandatory Use** – In May 2002, the Board adopted Ordinance No. 75 establishing incentives and mandating the use of recycled water. Under the provisions of Ordinance No. 75, which is consistent with the California Water Code (Sec 13550) and the State Water Resources Control Board guidelines, potential recycled water customers who do not use recycled water when it is available are subject to a 50% surcharge on their potable water rate.
- ◆ **Technical Assistance** – IEUA provides technical assistance to prepare necessary engineering reports and coordinate DPH approval of recycled water use at each customer's site. IEUA has also retained experts in industrial water use and quality to assist customers in assessing operational needs associated with using recycled water.
- ◆ **Financial Assistance** – Under the Regional Recycled Water policy adopted in September 2000, IEUA offers financing for capital improvements at customers facilities required to separate potable from non-potable water systems.
- ◆ **Increased Discount on Industrial Wastewater Discharge** – Industrial customers who use recycled water when available will be eligible for the reduced rate to wastewater discharge rate.

4.8.4 Recycled Water Incentives for Municipal Use

IEUA has organized a regional program to encourage water reuse within its service area. The establishment of new supplemental funding sources through federal, state and regional programs now provides significant financial incentives for local agencies to develop and make use of recycled water. This will remove a significant obstacle to the implementation of recycling water projects and programs. IEUA has proposed the following incentives to encourage the use of recycled water:

- ◆ Shared costs for service connections, water meters, and signage
- ◆ Loans to help finance local (i.e. non-regional) infrastructure and retrofit projects that contribute to the use of recycled water
- ◆ Technical assistance with engineering, regulatory, institutional and funding issues
- ◆ Guarantee of recycled water supply reliability, especially during drought conditions



4.9 Future Water Projects

§10631(h) (Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

SAWCo has three types of future projects related to supply: (1) groundwater production, (2) groundwater recharge and (3) infrastructure enabling transfer and exchange. In general, these projects are not intended to increase supply; rather, they are intended to enhance groundwater production and distribution flexibility and improve long-term groundwater storage. The various projects are described in the following sections and cited again in §5.3 as they pertain to mitigation of known supply constraints.

4.9.1 Groundwater Production Projects

Well replacement projects are listed in Table 14. In general, these projects improve flexibility and redundancy for production operations.

Table 14 – Future Groundwater Production Projects

Project Description	Impact on Supply	Implementation
Construct a new well in Six Basins	Improves flexibility and redundancy	2011
Construct a new well in the Chino Basin	Increases production capacity	2013



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4.9.2 Surface Water and Groundwater Recharge Projects

Well replacement projects are listed in Table 15. In general, these projects improve flexibility and redundancy for production operations.

Table 15 – Future Effective Use of Surface Water Projects

Project Description	Impact on Supply	Implementation
Double the size of the existing San Antonio Tunnel spreading grounds.	When excess surface water from San Antonio Creek is available, the yield from the San Antonio Tunnel will be increased. This will indirectly increase long-term storage in the Chino Basin, the Cucamonga Basin and Six Basins by limiting the volume of groundwater extractions necessary to achieve entitlement.	2014
Double the size of the existing Edison Ponds and establish conservation levees.	Additional turbulent surface water from San Antonio Creek will be desilted when available, rather than being diverted to San Antonio Dam, increasing SAWCo's capacity to capture existing water rights.	2014
The Cucamonga Creek Recharge Project consists of improvements to transmission system supplying the Cucamonga Channel spreading grounds and improvements to the channel outlet and earthworks in the spreading grounds.	When excess surface water from San Antonio Creek is available, a portion of that water will be diverted for spreading in the Cucamonga Basin. By maintaining a 10-year average of spreading in the Cucamonga Basin of 2,000 AFY, SAWCo is allowed to produce 6,500 AFY (i.e. 2,000 AFY above the base allocation of 4,500 AFY). A 10-year spreading average above 2,000 AFY may be extracted at a rate 95% of the additional spreading up to an additional 2,000 AFY.	2014
Study the feasibility of developing SAWCo's rights to Hardwood Canyon Spring surface water.	There is limited data on the availability of surface water in Hardwood Canyon Spring. This source may be able to supplement surface water production or spreading capacity by expanding SAWCo's ability to capture all of its surface water rights.	Under review.



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4.9.3 Transfer and Exchange Infrastructure Projects

There are three projects planned to improve opportunities and flexibility for transfer and exchange between SAWCo and its shareholders as shown in Table 16. The exact location, capacity and implementation schedule of these interconnection are under review.

Table 16 – Future Exchange and Transfer Infrastructure Projects

Discharging Agency	Receiving Agency	Tentative Implementation
SAWCo	City of Upland	2013
SAWCo	CVWD	2013
CVWD	SAWCo	2013



CHAPTER FIVE – WATER SUPPLY RELIABILITY

5.1 General Description

§10620(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

SAWCo's Bylaws include a provision to adjust entitlement based on the reliability of its water sources per the following excerpt:

SAWCo Bylaws §10.01 No water shall be supplied by company to any one who is not a shareholder, and all water shall be supplied at cost. ...each shareholder shall be entitled to receive such part of the entire water of the company that is available for distribution as the number of shares of stock held by him bears to the number of shares outstanding.

Entitlement, or “entire water”, has been adjusted three times since 1999 as indicated below in Table 17:

Table 17 – Historical Adjustments to Entitlement

Period	Total Entitlement (AFY)	Entitlement per Share (AFY per share)
November 1999 to September 2002	18,653.91	2.920
September 2002 to 2005	15,253.81	2.388
2005 to present	16,573.85	2.594

In so doing, SAWCo has largely avoided the need to import water to supplement its supply.

5.2 Summary of Historical Water Year Data

§10635(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.



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The SAWCo Bylaws define supply in terms of entitlement per the excerpt cited above in §5.1. For purposes of this section, supply is considered to be synonymous with entitlement. Entitlement is limited by SAWCo's groundwater and surface water rights and the capacity of SAWCo's production infrastructure.

Demand is considered to be all water that is delivered. Demand may vary from entitlement for the following reasons:

- ◆ Some shares may be inactive
- ◆ Some shareholders may use less than their entitlement
- ◆ Some shareholders may exceed their entitlement
- ◆ Larger shareholders may reject delivery during wet years

As a rule, there is no excess water produced by SAWCo. The difference between demand, per the reasons listed above, and entitlement is reconciled as follows:

- ◆ There is no carry-over for shareholders who use less than their full entitlement except under existing service agreements.
- ◆ For shareholders who exceed their entitlement, the additional volume of water is considered to represent the entitlement of inactive share. If the volume of water associated with inactive shares is exceeded, SAWCo has created a fund to purchase additional water on the shareholders' behalf to be repaid at a higher tiered rate.
- ◆ For large shareholders, any rejected volume is used to recharge area groundwater basins

Historical data bear out this difference between entitlement and demand. However, SAWCo's principle obligation is to provide 100% of its shareholders' entitlement. In other words, a projection of the number of inactive shares or the degree to which shareholders exceed or underuse their entitlement is not germane to the Company's mission. Furthermore, there are administrative vehicles in place to account for the reconciliation of these variations in a manner that does not interfere with the Company's principal obligation. Therefore, projected demand is equivalent to projected entitlement. There are currently no projected changes to entitlement. As such, current entitlement during normal years is determined to be constant for the planning horizon associated with this report.

Figure 5 was used to establish the single dry year and the multiple dry years. The thin red curve (Total Production) represents total annual production and the heavy red line (Entire Water) represents the total entitlement of 16,573.85 AFY. The orange curve (Tunnel Production) represents annual production from gravity sources whose trend is to be higher during wet years and lower during dry years. These three curves (Total

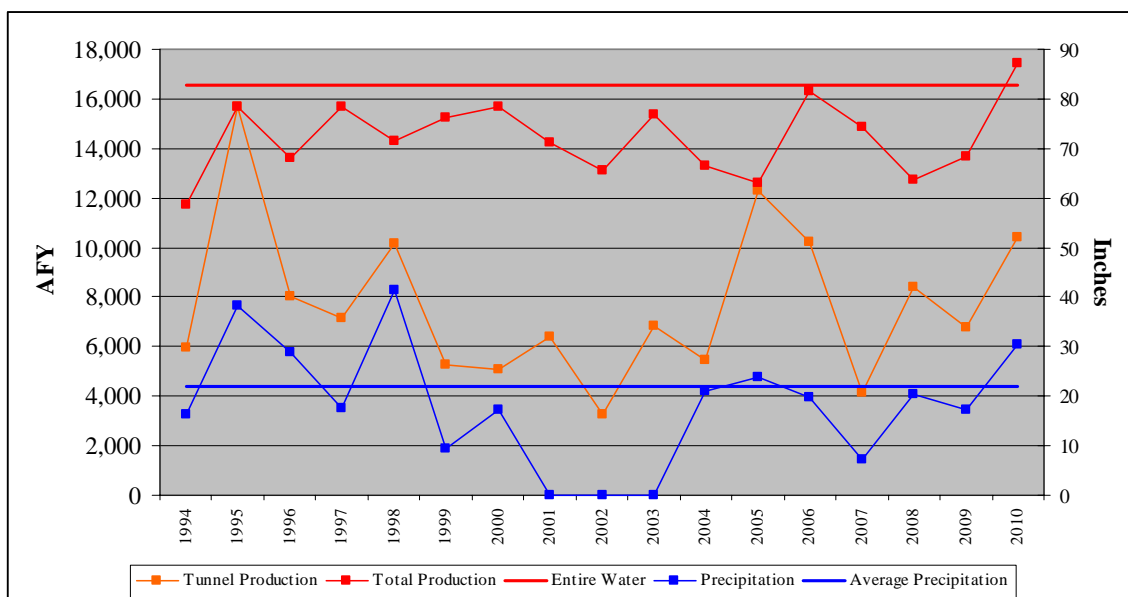


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Production, Entire Water and Tunnel Water) are read from the left vertical axis (AFY). The thin blue curve (Precipitation) represents the average annual precipitation recorded at five weather stations in the vicinity of the San Antonio Creek watershed (San Antonio Dam, San Gabriel Dam, San Dimas Fire Station, Big Tujunga Dam and Crystal Lake). The heavy blue line (Average Precipitation) represents the historical average precipitation at the above sites. These two curves (Precipitation and Average Precipitation) are read from the right vertical axis (Inches). Historical precipitation data for 2001, 2002 and 2003 were incomplete.

Figure 5 – Indication of Drought



By observation, the Tunnel Production curve and the Precipitation curve have the same general shape. Periods of high precipitation (1995, 1998, 2010) coincide with high gravity production. Periods of low precipitation (1994, 1997, 1999, 2000, 2007) coincide with low gravity production. Due to the consistency of these data sets, 2002 has been chosen to represent the single dry year because the lowest gravity production since 1994 occurred in that year, even though actual precipitation data are not available in their entirety.

2002 was verified by SAWCo staff as the most severe recent single year drought to impact local supply. The SAWCo Board of Directors took various actions (see Appendix Q) to deal with the resulting water shortage including requesting voluntary water conservation by shareholders, education, purchasing additional water from area purveyors, restricting access to or charging a premium for water beyond entitlement, limiting new construction and reducing entitlement globally.

The multiple dry years are chosen as a four-year period from 2006 to 2009, because all four years have below average precipitation.



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5.2.1 Normal Year

The current entitlement was approved by the Board in 2005 and is based on a 10-year production average of 16,573.85 AFY. Given that there is a total number of 6,389 shares, the current entitlement is set at 2.594 AFY per share. The Normal Year Supply is considered to be equivalent to the current entitlement.

Table 18 – Normal Year Supply

Item	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Total Entitlement	16,573.85	16,573.85	16,573.85	16,573.85	16,573.85
Entitlement per Share	2.594	2.594	2.594	2.594	2.594

5.2.2 Single Dry Year

SAWCo acknowledges that a significant drop in its ability to produce water may result in a review and respective reduction in entitlement, implementation of mandatory water conservation measures and purchase of imported water at a higher tiered rate. In 2002, which has been established as the single dry year, SAWCo's was obligated to make a downward adjustment to its total entitlement to account low precipitation in the San Antonio Watershed. As indicated in Table 17, the total entitlement was set at 15,253.81 AFY. For purposes of projecting the impact of a single dry year event, 15,253.81 AFY has been adopted as the single dry year supply for the planning horizon of this UWMP. Table 19 shows the single dry year supply through 2035 on a total entitlement and per share basis.

Table 19 – Single Dry Year Supply

Item	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Total Entitlement	15,253.81	15,253.81	15,253.81	15,253.81	15,253.81
Entitlement per Share	2.388	2.388	2.388	2.388	2.388

5.2.3 Multiple Dry Years

In each of the four years identified in §5.2 as the multiple dry years, SAWCo had combination of surface water production and groundwater availability that exceeded the total entitlement of 16,573.85 AFY. SAWCo did not actually produce the total entitlement since some shares were inactive and others were not fully utilized. Nonetheless, the potential to produce the total entitlement was available and is anticipated to be available in the future under similar conditions. Groundwater availability takes into account the various groundwater management plans in place in the Chino Basin, the Cucamonga Basin and Six Basins. Allowable annual production from



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any particular basin is based on the implementation of various management measures including, among other things, base allocation, carryover, credit for spreading, long-term storage, recovery, transfers and conjunctive use.

Table 20 shows the multiple dry year supply through 2035 on a total entitlement and per share basis. Note that supply is constant regardless of the projected timeframe or the number of the year in the multiple dry year sequence.

Table 20 – Multiple Dry Year Supply

Year	Item	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
1	Total Entitlement	16,573.85	16,573.85	16,573.85	16,573.85	16,573.85
	Entitlement per Share	2.594	2.594	2.594	2.594	2.594
2	Total Entitlement	16,573.85	16,573.85	16,573.85	16,573.85	16,573.85
	Entitlement per Share	2.594	2.594	2.594	2.594	2.594
3	Total Entitlement	16,573.85	16,573.85	16,573.85	16,573.85	16,573.85
	Entitlement per Share	2.594	2.594	2.594	2.594	2.594
4	Total Entitlement	16,573.85	16,573.85	16,573.85	16,573.85	16,573.85
	Entitlement per Share	2.594	2.594	2.594	2.594	2.594

5.2.4 Assessment of Supply Availability during an Immediate Drought

§10632(b) Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

Based on the historic availability of existing supplies per Table 9 and the impact of the 2006-2009 multiple-year drought described in §5.2.3, SAWCo estimates that, in the event of a multiple-year drought over the next three years, available supply will be equal to the current entitlement of 16,573.85 AFY.



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5.2.5 Assessment of Supply Reliability during Normal, Single Dry, and Multiple Dry Years

§10635(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

According to SAWCo's Bylaws, total entitlement is equivalent to the water the company is able to produce:

SAWCo Bylaws §10.01 No water shall be supplied by company to any one who is not a shareholder, and all water shall be supplied at cost. ...each shareholder shall be entitled to receive such part of the entire water of the company that is available for distribution as the number of shares of stock held by him bears to the number of shares outstanding.

Therefore, in this context, there is no difference between supply and demand rendering moot the reliability assessment described in §10635(a). For purposes of this UWMP, data contained in Table 18, Table 19 and Table 20 shall serve as the projected supply and demand under normal year, single dry year and multiple dry year conditions, respectively.



5.3 Potential Supply Issues and Constraints

§10631(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

Planning documents inherently deal with uncertainties about the future. Uncertainty cannot be avoided; however, adequate documentation and applied reason ensure the defensibility of future supply claims as presented in the previous sections. The continued reliability of the diverse sources of supply at SAWCo's disposal is contingent upon the Company's knowledge and vigilance regarding the unique challenges presented by each source. The following steps have been employed, documented as necessary, to satisfy issues surrounding supply uncertainty as they pertain to development of this UWMP:

- ◆ Acknowledge the uncertainty
- ◆ Specify the conclusion and how the conclusion was reached
- ◆ Reference supporting evidence
- ◆ Evaluate the likelihood that the conclusion is incorrect
- ◆ Provide an alternative in case the conclusion is proved incorrect
- ◆ Respond to comments regarding the conclusion
- ◆ Use the latest and best data available

5.3.1 Six Basins Constraints

There are two known constraints associated with production of groundwater extracted from Six Basins: (1) transmission system configuration and (2) aging production infrastructure.

Transmission System Configuration

The largest current shareholder is the City of Upland. A portion of the infrastructure dedicated to extracting groundwater from Six Basins is configured to deliver water directly to the City of Upland without comingling that water with other sources. In the event that the City of Upland rejects delivery of its full entitlement, SAWCo may not be able to produce its entire rights in Six Basins. This normally occurs when SAWCo delivers significant gravity flow to the City of Upland.



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In general, delivery of full entitlements only occurs during wet years when demand is low. There is a corresponding increase in the safe yield of the area basins as well as in the availability of surface water in San Antonio Creek/Canyon during wet years. As such, any lack of production of rights in Six Basins is offset by increased production from other sources. The inability to produce all rights in Six Basins due to the City of Upland rejecting delivery has never resulted in a water shortage, and no such shortage is anticipated in the future. In the event of a recurring pattern of rejection of delivery by the City of Upland resulting in a strain on overall supply, SAWCo may consider an engineering solution including increasing production elsewhere in Six Basins or reconfiguring existing transmission infrastructure to divert rejected production to other shareholders.

Aging Production Infrastructure

One of the two existing wells extracting from Six Basins, Well 26, is an aging cable-tool well that has been in use for over 60 years. The 2010 Water System Master Plan recommended increasing production in Six Basins by constructing a new well. This project is slated to begin in 2011. The new well will provide flexibility and redundancy to production in Six Basins.

5.3.2 Cucamonga Basin Constraints

There are three known constraints associated with production of groundwater extracted from the Cucamonga Basin: (1) water quality, (2) ability to capture Frankish & Stamm Tunnel water for delivery and (3) aging production infrastructure.

Water Quality

DBCP and nitrates have been detected in production from four of the existing wells extracting groundwater from the Cucamonga Basin, Wells 2, 3, 24 and 31. Production from Wells 2, 3 and 24 is delivered to the City of Upland where it is blended with other sources at the City's disposal. Per the SAWCo Bylaws, deliveries from these sources are classified as "irrigation". Water quality standards for "irrigation" shares are less rigorous than for "domestic" shares. Blending or treatment of "irrigation" water to potable water standards is the purview of the City of Upland who currently has such infrastructure and facilities in place.

Frankish & Stamm Tunnel Capacity

SAWCo is current unable to capture all of its rights to surface water. The Cucamonga Creek Recharge Project is intended to improve SAWCo's capacity to capture these rights via the Frankish and Stamm Tunnel. The project consists of improvements to the transmission system supplying the Cucamonga Channel spreading grounds and improvements to the channel outlet and earthworks in the spreading grounds.



Aging Production Infrastructure

Four of the existing wells extracting from the Cucamonga Basin, Wells 2, 3, 22, 24, are aging cable-tool wells that have been in use for over 60 years. Despite the age and condition of these wells, the 2010 Water System Master Plan concluded that there is adequate production redundancy for SAWCo to obtain all of its rights in the Cucamonga Basin. As a result, there were no recommendations to construct new wells in this basin. SAWCo monitors its wells on a continuous basis and replacement of the older Cucamonga Basin wells may be considered in the future.

5.3.3 Chino Basin Constraints

There are two known constraints associated with production of groundwater extracted from the Chino Basin: (1) limited operating safe yield and (2) aging production infrastructure.

Limited Operating Safe Yield

SAWCo's opportunity to extract groundwater from the Chino Basin is limited by the Operating Safe Yield (OSY) as determined annually by the Chino Basin Watermaster.

Aging Production Infrastructure

One of the existing wells extracting from the Chino Basin, Well 15, is an aging cable-tool well that has been in use for over 60 years. The 2010 Water System Master Plan recommended replacement of Well 15 in order to increase production capacity from the Chino Basin. This project is slated to begin in 2013.

5.3.4 San Antonio Tunnel Constraints

SAWCo is entitled to all water from the San Antonio Tunnel. However, SAWCo is not allowed to expand the existing tunnel. It is possible that tunnel production will diminish in the distant future due to the normal deterioration of the materials used to construct it. There is currently no indication of a reduction in capacity. Although expansion of the tunnel is not allowed, there is no restriction on improvements made to spreading facilities which influence tunnel production and plans for such improvements are underway. Furthermore, in the event that all or a portion of the tunnel's capacity is lost, (1) spreading water normally intended to augment tunnel flow will be spread in one of the area basins for long-term storage and (2) the base flow below San Antonio Creek will naturally augment Six Basins.

5.3.5 Impact of Colonies Lawsuit

A lawsuit between the Colonies Partners LP (the developers of a project in north Upland) and San Bernardino County resulted in a 2006 ruling by Superior Court Judge Christopher J. Warner that impacts the water surface elevation in the Chino Basin in the



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vicinity of certain SAWCo production facilities as a result of flood control improvements.

To mitigate the loss of the associated storage capacity, SAWCo plans to increase storage in other basins through improvements to spreading grounds and associated transmission infrastructure. These projects are discussed in greater detail in §4.3.2.

5.4 Water Quality

§10634 The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Per the water quality testing performed on SAWCo's potable sources, there were no violations of State water quality protocols or standards as of December 2009. Results for potable water quality testing are presented in Appendix K. There are no current or anticipated affects on management and reliability of SAWCo potable water supplies due to water quality issues.

SAWCo also delivers raw water to some shareholders in accordance with its Bylaws. The following sections describe water quality concerns for such deliveries.

5.4.1 Cucamonga Basin Contaminants

Three wells that extract groundwater from the Cucamonga Basin, Wells 2, 3 and 24, have exhibited traces of DBCP⁹ and nitrates. These wells deliver water designated as "irrigation" water per the SAWCo Bylaws. Production from these wells is currently delivered to the Red Hill Country Club and the City of Upland. This level of water quality is suitable for irrigation of the golf course. The City of Upland maintains a blending facility capable of blending production from these wells with other sources at the City's disposal to potable standards. There are no current or anticipated affects on management and reliability of Cucamonga Basin supplies due to water quality issues.

5.4.2 City of Upland Treatment Capacity

SAWCo surface water delivery to the City of Upland's San Antonio Canyon Surface Water Treatment Plant was classified as Bin 2 due to a Cryptosporidium hit. The Plant is equipped to provide appropriate treatment for Cryptosporidium and no loss of production capacity was experienced as a result. Occurrences of Cryptosporidium contamination are rare and are not anticipated to impact supply because existing treatment facilities in the City of Upland have mitigated and will continue to mitigate this possibility.

⁹ DBCP = dibromochloropropane



5.5 Water Shortage Contingency Planning

§10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

§10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

§10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

§10632(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

§10632(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

§10632(f) Penalties or charges for excessive use, where applicable.

§10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

§10632(h) A draft water shortage contingency resolution or ordinance.

§10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

The SAWCo Board of Directors adopted in 2006 Resolution No. 2006-06-03 entitled “Water Shortage Contingency Plan”. The sections that follow describe in detail the contents and methodologies for implementation of plan. Resolution No. 2006-06-03 is included in its entirety in Appendix J.



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5.5.1 Rationing Stages

The implementation of the various rationing stages is to be determined by the Board of Directors. In general, if the implementation of a certain rationing stage fails to produce a sufficient reduction in demand so as to generate a sufficient supply, then a more next more restrictive stage is to be implemented. The rationing stages are designated as follows:

- ◆ Year Round Stage
- ◆ Moderate Shortage Stage
- ◆ High Shortage Stage
- ◆ Severe Shortage Stage

5.5.2 Mandatory Prohibitions and Consumptive Reductions Methods

Year Round Stage

- ◆ Washing of sidewalks, driveways and parking lots prohibited
- ◆ Excessive irrigation run-off prohibited
- ◆ Customer has 72 hours to repair leaks or breaks within private plumbing or distribution system following notification by the Water Company
- ◆ Landscape irrigation between 10 AM and 6 PM prohibited
- ◆ Washing of vehicles and equipment must be done with a hand held bucket or hand held hose equipped with a nozzle unless at a commercial carwash
- ◆ Establishments shall not provide drinking water unless requested

Moderate Shortage Stage (in addition to all above measures)

- ◆ Landscape irrigation for locations having an even-numbered address is permitted only on even days of the month and having an odd-numbered address only on odd days of the month.
- ◆ Washing of vehicles and equipment must occur at designated areas and only between midnight and noon.
- ◆ Only carwashes operating to approved county standards with equipment to recycle water for reuse within the facility are permitted



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- Refilling or adding water to swimming pools is restricted to designated outdoor water use days between 6 PM and 10 AM
- Use of non-business related ornamental ponds or fountains is prohibited
- The use of potable water to irrigate golf course fairways is prohibited
- The use of fire hydrants shall be limited to emergency related activities

High Shortage Stage (in addition to all above measures)

- Landscape irrigation shall be limited to two days per week between sundown and 6 AM
- Washing of vehicles is prohibited except when necessary to protect public safety
- Filling of new swimming pools shall be by permit only

The use of potable water to irrigate golf course tees areas and fairways is prohibited

Severe Shortage Stage (in addition to the above measures)

- Landscape irrigation shall be limited to one day per week between sundown and 6 AM
- Washing of vehicles is prohibited

5.5.3 Penalties and Charges

Assessments to shareholders found to be in non-compliance with the provisions of the Water Shortage Contingency Plan are shown in Table 21.

Table 21 – Assessment for Violation of the Resolution 2006-06-03

Infraction	Fee
First Occurrence	\$50
Second Occurrence	\$100
Third or More Occurrence	\$500

5.5.4 Impact of Water Shortage Contingency Planning Implementation

Historically, implementation of Water Shortage Contingency Planning has been limited to the short-term recalculation of entitlement, which has successfully averted the need for more severe measures. In light of the possibility that some shareholders may exceed their entitlement and that entitlement associated with inactive shares is insufficient to account



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for the amount exceeded, a reserve of \$150,000 has been approved by the Board for purchase of such water at a higher tiered rate per Resolution No. 2007-01-01.

There can be no financial impact to SAWCo due to a water shortage because all water must be provided at cost per the Bylaws. The ultimate responsibility for proper use and conservation of entitlement lies with the shareholders.

5.6 Drought Planning

§10631(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years.

The principles of the Water Shortage Contingency Plan, as delineated in Resolutions No. 2006-06-03 and No. 2007-01-01, apply equally to water shortages caused by catastrophic disruption and drought. Data contained in Table 18, Table 19 and Table 20 represent the historical impact of implementation of Water Shortage Contingency Planning as projected for future supply reliability under normal year, single dry year and multiple dry year conditions, respectively.



CHAPTER SIX – DEMAND MANAGEMENT MEASURES

6.1 General Description

§10631(f)(1) and (2) (Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) water survey programs for single-family residential and multifamily residential customers; (B) residential plumbing retrofit; (C) system water audits, leak detection, and repair; (D) metering with commodity rates for all new connections and retrofit of existing connections; (E) large landscape conservation programs and incentives; (F) high-efficiency washing machine rebate programs; (G) public information programs; (H) school education programs; (I) conservation programs for commercial, industrial, and institutional accounts; (J) wholesale agency programs; (K) conservation pricing; (L) water conservation coordinator; (M) water waste prohibition; (N) residential ultra-lowflush toilet replacement programs.

§10631(f)(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

§10631(f)(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

§10631(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.



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For purposes of preparing this UWMP, San Antonio Water Company (SAWCo) meets the statutory definition of an “urban wholesale water supplier” which is a departure from previous reporting. The 2005 UWMP was prepared under the assumption that SAWCo was an “urban retail water supplier”. SAWCo, as a signatory to the Memorandum of Understanding Regarding Urban Water Conservation Best Management Practices (MOU) by the California Urban Water Conservation Council (CUWCC), has been reporting the implementation of Best Management Practices (BMP) as a retailer. Having only recently been redefined as a wholesaler, historical reporting to CUWCC is not necessarily representative of SAWCo’s current responsibilities as a wholesaler to its shareholders who act as retail suppliers per Part I, page I-iv, of DWR’s *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan*.

As of CY 2009-10 reporting to CUWCC, SAWCo is working with CUWCC to provide appropriate detail regarding BMP implementation with respect to its new status as a wholesaler. However, additional planning at the Company level will be conducted to assure that SAWCo’s new responsibilities are well defined and that appropriate steps are taken to achieve compliance with the MOU. This planning will likely take the form of a workshop hosted by SAWCo with shareholders and other interested stakeholders in attendance. It was determined during the review process of this UWMP that coordination of such a workshop and implementation of the forthcoming recommendations would take place at a date beyond the submittal deadline and therefore associated documentation is not included herein. In anticipation of the conclusions of such a workshop, SAWCo provides the following observations:

- ◆ SAWCo’s influence as a wholesaler is limited to those shareholders who act as water retailers. The Inland Empire Utilities Agency (IEUA) is a local wholesaler with a sphere of influence that encompasses a more comprehensive area and whose member agencies include all of SAWCo’s shareholders who act as water retailers and SAWCo itself. This puts IEUA in a superior position to manage and oversee wholesale activity in the area.
- ◆ Per SAWCo Bylaws §1.01, the corporation is to develop, distribute, supply and deliver water to its shareholders “*at actual cost*”. Wholesalers are typically expected to provide financial incentives to their retail agencies. These directives appear to be in conflict; however, SAWCo believes that providing low-cost water frees up funding at the retail level which each retailer may put to beneficial use as they see fit.
- ◆ Despite SAWCo’s designation as a wholesaler, the company has numerous retail accounts. BMPs which are typically reserved for retailers may significantly benefit SAWCo’s retail shareholders. Implementation of such BMPs will be considered on a case by case basis. This assures that retail shareholders have the opportunity to access applicable and desirable conservation measures and programs.



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- SAWCo conducts significant groundwater recharge operations in the local basins and plans to expand its capacity in this area. During normal and wet years, significant volumes of excess surface runoff from the San Antonio Canyon watershed may be diverted for recharge of local basins rather than allowing such runoff to leave the area via the Santa Ana River. In addition to providing long-term storage for its shareholders, such operations tend to stabilize the basins thus providing an indirect benefit to purveyors with adjudicated rights in the local basins.

It is SAWCo's intent that more precise coordination and reporting with CUWCC will follow the implementation of the various wholesaler BMPs. In the meantime, SAWCo has completed its BMP reporting efforts for CY 2009-10 under guidance from CUWCC. This documentation may be found in Appendix P.

The sections that follow provide some insight into current water conservation efforts.

6.2 Water Audits, Leak Detection and Repair

SAWCo regularly reconciles its production and delivery records. There is a general maintenance program in place for leak detection and repair.

6.3 Commodity Rate Metering for All New & Retrofit of Existing Connections

All deliveries are metered at this time.

6.4 Wholesale Agency Programs

Due to SAWCo's previous status as a retailer, there are no wholesale agency programs in place at this time.

6.5 Conservation Pricing

Per SAWCo Bylaws, all water is delivered at actual cost.

6.6 Water Conservation Coordinator

SAWCo does not have a dedicated water conservation coordinator, but employs administrative staff devoted to commit part time as the Company's water conservation representative.



REFERENCES

California Department of Water Resources (December 2010)
Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan Draft

California Department of Water Resources (October 2010)
Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use

California Department of Water Resources (August 2010)
California Drought Contingency Plan

California Department of Water Resources (February 2010)
20x2020 Water Conservation Plan

California Department of Water Resources (October 2008)
Managing an Uncertain Future – Climate Change Adaption Strategies for California's Water

California Department of Water Resources (2008)
Urban Drought Guidebook 2008 Updated Edition

California Department of Water Resources (October 2003)
Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001

Chino Basin Watermaster (2010)
33rd Annual Report Fiscal Year 2009-10

Chino Basin Watermaster (2009)
32nd Annual Report Fiscal Year 2008-09

Chino Basin Watermaster (2008)
31st Annual Report Fiscal Year 2007-08

Chino Basin Watermaster (2007)
30th Annual Report Fiscal Year 2006-07

Chino Basin Watermaster (2006)
29th Annual Report Fiscal Year 2005-06

Chino Basin Watermaster (2002)
Annual Report Fiscal Year 2001-02



REFERENCES

SAN ANTONIO WATER COMPANY

Emerson, Sandra (April 14, 2011)
Some water lost from basin in Upland
Inland Empire Daily Bulletin
(http://www.dailybulletin.com/ci_17848527)

Emerson, Sandra (September 15, 2010)
Upland to start water project soon
Inland Empire Daily Bulletin
(<http://blogs.dailybulletin.com/uplandnow/2010/09/upland-to-start-water-project.html>)

Horwitz, Jeff (August 1, 2006)
Judge rules for Colonies, blasts county
Inland Valley Daily Bulletin
(<http://timkenlawgroup.com/documents/archives/2006/DailyBulletin.com%20-%20judge%20rules%20for%20colonies%20-%20blasts%20county.PDF>)

Leung, Wendy (January 23, 2011)
Recycled Water Plan On Tap for the Region
California Coastkeeper Alliance
(<http://www.cacoastkeeper.org/news/recycled-water-plan-on-tap-for-the-region>)

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